Matrix Spike Sample (MS) Report

Date Acquired	8/10/2016 17:40	Sample Name	1607294-52A MS
Data Batch	160810.b	Comment	MS ICPMS_TSDOD1
Data File Name	152_MSS.d	Dilution	5

Mass	Name	IS	Conc	CPS	%RSD	Ref Conc	Spk Amt	%Rec	Low	High	Flag
7	Li	45	279.122	4771	2.05	79.6	200	99.8	80	120	
9	Be	45	215.538	6216	1.73	3.1	200	106.2	80	120	
11	B	45	304.227	4069	4.26	123.9	200	90.2	80	120	
23	Na	45	6028.070	4426758	0.16	951.5	1000	507.7	80	120	Fail
24	Mg	45	22551.407	8403090	0.99	18712.8	1000	383.9	80	120	Fail
27	Al	45	86585.283	12004916	1.89	87755.5	1000	-117.0	80	120	Fail
39	K	45	26641.557	9973146	1.40	23056.7	1000	358.5	80	120	Fail
44	Ca	45	########	2500335	0.56	124152.6	1000	-464.1	80	120	Fail
47	Ti	45	555.767	79208	0.36	321.5	200	117.1	80	120	
51	V	45	328.378	1501594	0.38	126.2	200	101.1	80	120	
52	Cr	45	277.718	1528424	0.65	75.9	200	100.9	80	120	
55	Mn	45	703.519	2184224	1.25	508.0	200	97.8	80	120	
56	Fe	45	80670.490	377985487	1.82	83835.7	1000	-316.5	80	120	Fail
59	Co	72	237.961	1997832	0.49	25.8	200	106.1	80	120	
60	Ni	72	251.770	570831	0.20	42.0	200	104.9	80	120	
63	Cu	72	227.659	1418272	0.34	17.5	200	105.1	80	120	
66	Zn	72	412.277	431275	0.15	212.7	200	99.8	80	120	
75	As	72	236.592	196672	0.61	22.6	200	107.0	80	120	
78	Se	72	213.673	11084	0.70	5.9	200	103.9	80	120	
88	Sr	115	581.903	2407910	0.30	401.6	200	90.2	80	120	
95	Mo	115	192.853	687871	0.82	1.2	200	95.8	80	120	
107	Ag	115	203.147	2211478	0.32	0.1	200	101.5	80	120	
111	Cd	115	207.203	340133	0.93	0.4	200	103.4	80	120	
118	Sn	115	213.748	763470	1.15	5.8	200	104.0	80	120	
121	Sb	115	57.536	305650	0.57	0.7	200	28.4	80	120	Fail
137	Ba	115	909.253	1582485	0.78	823.9	200	42.7	80	120	Fail
205	Tl	209	208.213	5255909	0.88	0.6	200	103.8	80	120	
208	Pb	209	251.942	8435525	0.71	45.1	200	103.4	80	120	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	975231	0.91	1009769	96.58	70	120	
72	Ge	688056	0.40	736750	93.39	70	120	
115	In	6563857	0.42	7000350	93.76	70	120	
209	Bi	15678320	1.90	16359618	95.84	70	120	

Matrix Spike Sample (MS) Report

Date Acquired	8/10/2016 17:42	Sample Name	1607294-52A MSD
Data Batch	160810.b	Comment	MSD ICPMS_TSDOD1
Data File Name	153_MSS.d	Dilution	5

Mass	Name	IS	Conc	CPS	%RSD	Ref Conc	Spk Amt	%Rec	Low	High	Flag
7	Li	45	276.069	4753	3.07	79.6	200	98.2	80	120	
9	Be	45	215.914	6272	1.26	3.1	200	106.4	80	120	
11	B	45	294.256	3965	3.05	123.9	200	85.2	80	120	
23	Na	45	5899.456	4364382	0.49	951.5	1000	494.8	80	120	Fail
24	Mg	45	22361.825	8391644	0.79	18712.8	1000	364.9	80	120	Fail
27	Al	45	86567.647	12088186	0.25	87755.5	1000	-118.8	80	120	Fail
39	K	45	26473.846	9981764	1.17	23056.7	1000	341.7	80	120	Fail
44	Ca	45	########	2584949	0.36	124152.6	1000	-147.3	80	120	Fail
47	Ti	45	554.376	79578	0.76	321.5	200	116.4	80	120	
51	V	45	327.640	1508930	0.71	126.2	200	100.7	80	120	
52	Cr	45	276.224	1531072	0.48	75.9	200	100.2	80	120	
55	Mn	45	678.786	2122388	0.68	508.0	200	85.4	80	120	
56	Fe	45	79595.381	375630687	1.16	83835.7	1000	-424.0	80	120	Fail
59	Co	72	234.171	1971823	0.36	25.8	200	104.2	80	120	
60	Ni	72	248.657	565424	1.31	42.0	200	103.3	80	120	
63	Cu	72	225.379	1408253	0.34	17.5	200	103.9	80	120	
66	Zn	72	406.142	426144	0.83	212.7	200	96.7	80	120	
75	As	72	234.267	195322	0.61	22.6	200	105.9	80	120	
78	Se	72	210.301	10943	0.84	5.9	200	102.2	80	120	
88	Sr	115	581.156	2439962	0.25	401.6	200	89.8	80	120	
95	Mo	115	188.298	681379	0.90	1.2	200	93.5	80	120	
107	Ag	115	199.395	2202292	0.31	0.1	200	99.6	80	120	
111	Cd	115	203.393	338807	1.21	0.4	200	101.5	80	120	
118	Sn	115	210.983	764692	0.69	5.8	200	102.6	80	120	
121	Sb	115	55.305	298132	0.66	0.7	200	27.3	80	120	Fail
137	Ba	115	1043.690	1843050	0.18	823.9	200	109.9	80	120	
205	Tl	209	206.709	5188943	0.27	0.6	200	103.1	80	120	
208	Pb	209	250.019	8324919	0.21	45.1	200	102.5	80	120	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	982186	0.48	1009769	97.27	70	120	
72	Ge	690139	0.99	736750	93.67	70	120	
115	In	6661348	1.92	7000350	95.16	70	120	
209	Bi	15590743	1.39	16359618	95.30	70	120	

Continuing Calibration Verification (CCV) Report

Date Acquired	8/10/2016 17:50	Sample Name	CCV6-160810
Data Batch	160810.b	Comment	CCV ICPMS_TW
Data File Name	157_CCV.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
7	Li	45	209.079	3517	0.97	200	104.5	90	110	
9	Be	45	219.082	6216	0.70	200	109.5	90	110	
11	B	45	219.353	2897	4.12	200	109.7	90	110	
23	Na	45	5476.036	3960316	0.95	5000	109.5	90	110	
24	Mg	45	5365.839	1967394	1.17	5000	107.3	90	110	
27	Al	45	5192.894	709272	1.08	5000	103.9	90	110	
39	K	45	5320.606	2001583	1.19	5000	106.4	90	110	
44	Ca	45	4998.516	103297	2.27	5000	100.0	90	110	
47	Ti	45	204.404	28664	1.86	200	102.2	90	110	
51	V	45	211.839	953898	0.56	200	105.9	90	110	
52	Cr	45	213.122	1154070	0.49	200	106.6	90	110	
55	Mn	45	210.298	642348	0.96	200	105.1	90	110	
56	Fe	45	5361.076	24712774	2.56	5000	107.2	90	110	
59	Co	72	215.613	1836678	0.92	200	107.8	90	110	
60	Ni	72	216.829	498847	0.60	200	108.4	90	110	
63	Cu	72	217.488	1374829	0.97	200	108.7	90	110	
66	Zn	72	213.847	227161	1.02	200	106.9	90	110	
75	As	72	217.026	183068	0.36	200	108.5	90	110	
78	Se	72	211.909	11155	1.77	200	106.0	90	110	
88	Sr	115	199.454	851229	0.37	200	99.7	90	110	
95	Mo	115	203.665	748979	0.67	200	101.8	90	110	
107	Ag	115	206.890	2322068	0.33	200	103.4	90	110	
111	Cd	115	207.576	351306	1.51	200	103.8	90	110	
118	Sn	115	202.413	745469	0.51	200	101.2	90	110	
121	Sb	115	205.167	1122800	0.35	200	102.6	90	110	
137	Ba	115	206.116	369884	0.26	200	103.1	90	110	
205	Tl	209	205.269	5253744	1.23	200	102.6	90	110	
208	Pb	209	207.397	7042234	0.28	200	103.7	90	110	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	959331	0.94	1009769	95.00	70	120	
72	Ge	698125	0.37	736750	94.76	70	120	
115	In	6767661	0.97	7000350	96.68	70	120	
209	Bi	15897026	1.26	16359618	97.17	70	120	

Low Level Calibration Verification (LLCV) Report

Date Acquired	8/10/2016 17:54	Sample Name	LCVL6-160810
Data Batch	160810.b	Comment	LCVLICPMS_TW
Data File Name	159LCCV.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
7	Li	45	11.743	205	1.13	10	117.4	70	130	
9	Be	45	1.104	33	19.97	1	110.4	70	130	
11	B	45	40.672	574	10.22	20	203.4	70	130	Fail
23	Na	45	139.439	148932	0.91	100	139.4	70	130	Fail
24	Mg	45	108.498	41016	1.49	100	108.5	70	130	
27	Al	45	114.059	16842	1.57	100	114.1	70	130	
39	K	45	120.160	98140	1.41	100	120.2	70	130	
44	Ca	45	106.619	2667	2.58	100	106.6	70	130	
47	Ti	45	5.618	804	8.86	5	112.4	70	130	
51	V	45	1.047	7585	4.04	1	104.7	70	130	
52	Cr	45	5.394	30885	1.00	5	107.9	70	130	
55	Mn	45	5.314	16593	1.82	5	106.3	70	130	
56	Fe	45	118.362	559491	0.95	100	118.4	70	130	
59	Co	72	5.509	47399	1.52	5	110.2	70	130	
60	Ni	72	5.496	13011	2.07	5	109.9	70	130	
63	Cu	72	5.426	37112	0.27	5	108.5	70	130	
66	Zn	72	5.791	6564	1.90	5	115.8	70	130	
75	As	72	5.547	4915	1.30	5	110.9	70	130	
78	Se	72	5.685	367	4.63	5	113.7	70	130	
88	Sr	115	5.332	22947	0.46	5	106.6	70	130	
95	Mo	115	5.324	19427	3.05	5	106.5	70	130	
107	Ag	115	2.178	24178	0.26	2	108.9	70	130	
111	Cd	115	1.007	1695	9.80	1	100.7	70	130	
118	Sn	115	5.195	20249	1.27	5	103.9	70	130	
121	Sb	115	2.121	11804	3.07	2	106.0	70	130	
137	Ba	115	5.371	9566	3.38	5	107.4	70	130	
205	Tl	209	1.045	28077	2.70	1	104.5	70	130	
208	Pb	209	1.091	43163	1.10	1	109.1	70	130	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	971854	0.34	1009769	96.25	70	120	
72	Ge	702557	0.42	736750	95.36	70	120	
115	In	6687004	2.12	7000350	95.52	70	120	
209	Bi	16229622	0.45	16359618	99.21	70	120	

Continuing Calibration Blank (CCB) Report

Date Acquired	8/10/2016 17:56	Sample Name	CCB6-160810
Data Batch	160810.b	Comment	CCB ICPMS_TW
Data File Name	160_CCB.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	MDL S	MDL Aq	QC Flag
7	Li	45	0.280	10	43.1	2	5	
9	Be	45	0.002	2	34.6	0.4	0.3	
11	B	45	21.273	321	14.5	10	10	FailAq FailSoil
23	Na	45	25.360	66890	0.8	50	100	
24	Mg	45	0.200	813	4.7	50	100	
27	Al	45	5.499	1859	3.9	50	10	
39	K	45	8.101	57021	1.5	50	100	
44	Ca	45	10.503	669	7.8	50	100	
47	Ti	45	0.040	12	63.0	4	3	
51	V	45	-0.099	2394	1.4	4	3	
52	Cr	45	-0.031	1168	1.1	2	2	
55	Mn	45	0.031	252	8.0	2	3	
56	Fe	45	4.017	25756	6.5	50	50	
59	Co	72	0.003	203	10.2	2	3	
60	Ni	72	-0.017	258	14.5	2	3	
63	Cu	72	-0.192	1456	2.3	2	2	
66	Zn	72	-0.084	298	15.3	4	2	
75	As	72	-0.002	213	9.8	2	2	
78	Se	72	0.084	73	16.6	1	2	
88	Sr	115	0.091	907	13.3	4	3	
95	Mo	115	0.068	351	4.7	2	2	
107	Ag	115	0.041	503	5.2	0.4	1	
111	Cd	115	0.009	26	54.3	0.4	0.3	
118	Sn	115	-0.194	708	3.1	4	3	
121	Sb	115	-0.007	317	24.7	2	0.8	
137	Ba	115	0.049	134	14.9	2	3	
205	Tl	209	0.032	1563	11.9	2	0.5	
208	Pb	209	0.007	5527	3.8	0.4	0.3	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	979773	0.50	1009769	97.03	70	120	
72	Ge	710204	0.37	736750	96.40	70	120	
115	In	7001610	0.75	7000350	100.02	70	120	
209	Bi	15985945	0.55	16359618	97.72	70	120	

Sample Report

Date Acquired	8/10/16 5:59 PM	Sample Name	1607294-58A
Data Batch	160810.b	Comment	SAMPICPMS_TSDOD1
Data File Name	161SMPL.d	Dilution	5

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
7	Li	45	98.097	1737	3.90	2000	>RL
9	Be	45	4.618	139	9.03	2000	>RL
11	B	45	154.961	2162	7.26	2000	>RL
23	Na	45	730.850	598744	0.53	25000	>RL
24	Mg	45	17806.872	6861154	0.83	25000	>RL
27	Al	45	69872.113	10018155	1.68	10000	OUTCAL
39	K	45	26398.209	10218763	1.16	25000	OUTCAL
44	Ca	45	58170.798	1258713	0.85	25000	OUTCAL
47	Ti	45	270.164	39820	0.78	2000	>RL
51	V	45	109.992	522057	0.68	2000	>RL
52	Cr	45	83.379	475474	0.58	2000	>RL
55	Mn	45	182.828	587061	0.84	2000	>RL
56	Fe	45	118062.775	572049382	0.49	10000	OUTCAL
59	Co	72	31.863	274666	0.24	2000	>RL
60	Ni	72	42.636	99443	1.28	2000	>RL
63	Cu	72	5.167	35639	2.79	2000	>RL
66	Zn	72	245.301	263475	0.64	2000	>RL
75	As	72	20.148	17382	0.33	2000	>RL
78	Se	72	6.088	390	11.88	2000	>RL
88	Sr	115	430.868	1860757	0.21	2000	>RL
95	Mo	115	0.785	3013	3.54	2000	
107	Ag	115	0.052	620	9.78	500	
111	Cd	115	0.056	106	36.60	2000	
118	Sn	115	6.613	26015	2.15	2000	>RL
121	Sb	115	0.068	724	6.45	500	
137	Ba	115	297.189	539812	0.45	2000	>RL
205	Tl	209	0.290	8182	4.83	2000	
208	Pb	209	17.953	614738	1.04	2000	>RL

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1008417	0.37	1009769	99.87	70	120	
72	Ge	706058	0.13	736750	95.83	70	120	
115	In	6851150	1.70	7000350	97.87	70	120	
209	Bi	15903783	0.74	16359618	97.21	70	120	

Sample Report

Date Acquired	8/10/16 6:01 PM	Sample Name	1607294-59A
Data Batch	160810.b	Comment	SAMPICPMS_TSDOD1
Data File Name	162SMPL.d	Dilution	5

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
7	Li	45	56.764	1013	1.91	2000	>RL
9	Be	45	3.024	92	7.61	2000	>RL
11	B	45	81.324	1160	5.32	2000	>RL
23	Na	45	831.232	678156	0.79	25000	>RL
24	Mg	45	14782.795	5729941	2.38	25000	>RL
27	Al	45	78002.614	11249825	1.04	10000	OUTCAL
39	K	45	18944.644	7392472	1.68	25000	>RL
44	Ca	45	33758.678	735000	0.91	25000	OUTCAL
47	Ti	45	281.296	41706	1.49	2000	>RL
51	V	45	113.030	539558	0.23	2000	>RL
52	Cr	45	67.388	386828	0.94	2000	>RL
55	Mn	45	601.940	1943906	0.46	2000	>RL
56	Fe	45	72907.222	355334955	1.32	10000	OUTCAL
59	Co	72	24.355	211697	1.04	2000	>RL
60	Ni	72	39.422	92723	1.79	2000	>RL
63	Cu	72	62.572	405234	0.58	2000	>RL
66	Zn	72	215.709	233630	0.31	2000	>RL
75	As	72	32.160	27843	0.99	2000	>RL
78	Se	72	5.324	352	4.90	2000	>RL
88	Sr	115	249.826	1083273	0.67	2000	>RL
95	Mo	115	1.662	6298	1.29	2000	
107	Ag	115	0.133	1543	5.16	500	
111	Cd	115	0.440	768	18.87	2000	>RL
118	Sn	115	5.793	23058	0.68	2000	>RL
121	Sb	115	6.378	35805	1.05	500	>RL
137	Ba	115	608.970	1110507	0.56	2000	>RL
205	Tl	209	0.586	15747	0.94	2000	
208	Pb	209	426.586	14475987	0.15	2000	>RL

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1014393	0.49	1009769	100.46	70	120	
72	Ge	711830	0.41	736750	96.62	70	120	
115	In	6879780	2.67	7000350	98.28	70	120	
209	Bi	15892672	1.11	16359618	97.15	70	120	

Sample Report

Date Acquired	8/10/16 6:03 PM	Sample Name	1607294-60A
Data Batch	160810.b	Comment	SAMPICPMS_TSDOD1
Data File Name	163SMPL.d	Dilution	5

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
7	Li	45	63.273	1112	3.74	2000	>RL
9	Be	45	3.180	96	21.53	2000	>RL
11	B	45	86.992	1219	10.35	2000	>RL
23	Na	45	879.875	704237	0.51	25000	>RL
24	Mg	45	17196.251	6565718	1.59	25000	>RL
27	Al	45	85093.064	12089081	0.52	10000	OUTCAL
39	K	45	21910.851	8414810	0.89	25000	>RL
44	Ca	45	87387.877	1873656	1.01	25000	OUTCAL
47	Ti	45	232.234	33923	1.22	2000	>RL
51	V	45	114.031	536230	0.50	2000	>RL
52	Cr	45	70.909	400896	0.66	2000	>RL
55	Mn	45	534.957	1701881	0.82	2000	>RL
56	Fe	45	76165.842	365708048	0.26	10000	OUTCAL
59	Co	72	25.724	219896	1.40	2000	>RL
60	Ni	72	41.686	96407	1.03	2000	>RL
63	Cu	72	35.295	225945	0.21	2000	>RL
66	Zn	72	204.459	217802	0.82	2000	>RL
75	As	72	22.840	19509	1.74	2000	>RL
78	Se	72	5.840	374	3.23	2000	>RL
88	Sr	115	332.086	1405029	0.49	2000	>RL
95	Mo	115	1.124	4184	1.04	2000	
107	Ag	115	0.100	1139	11.94	500	
111	Cd	115	0.412	702	6.48	2000	>RL
118	Sn	115	5.035	19740	0.76	2000	>RL
121	Sb	115	0.870	5061	1.98	500	
137	Ba	115	524.238	932884	1.11	2000	>RL
205	Tl	209	0.594	15622	2.04	2000	
208	Pb	209	69.069	2302350	0.08	2000	>RL

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	999347	0.94	1009769	98.97	70	120	
72	Ge	700044	0.57	736750	95.02	70	120	
115	In	6711562	1.86	7000350	95.87	70	120	
209	Bi	15581195	0.52	16359618	95.24	70	120	

Sample Report

Date Acquired	8/10/16 6:04 PM	Sample Name	1607294-61A
Data Batch	160810.b	Comment	SAMPICPMS_TSDOD1
Data File Name	164SMPL.d	Dilution	5

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
7	Li	45	63.947	1103	2.61	2000	>RL
9	Be	45	2.565	76	6.58	2000	>RL
11	B	45	95.466	1310	9.71	2000	>RL
23	Na	45	800.051	632845	0.21	25000	>RL
24	Mg	45	14577.651	5462726	0.77	25000	>RL
27	Al	45	53086.198	7403041	2.51	10000	OUTCAL
39	K	45	15420.863	5828718	2.60	25000	>RL
44	Ca	45	375748.203	7904137	0.96	25000	OUTCAL
47	Ti	45	290.971	41711	2.02	2000	>RL
51	V	45	93.106	430206	0.96	2000	>RL
52	Cr	45	62.639	347730	1.00	2000	>RL
55	Mn	45	2148.281	6706892	1.06	2000	OUTCAL
56	Fe	45	66501.516	313364974	1.99	10000	OUTCAL
59	Co	72	20.976	174737	1.42	2000	>RL
60	Ni	72	38.013	85682	0.81	2000	>RL
63	Cu	72	9.663	62151	1.08	2000	>RL
66	Zn	72	145.056	150668	1.14	2000	>RL
75	As	72	17.990	15016	0.35	2000	>RL
78	Se	72	4.960	319	4.62	2000	>RL
88	Sr	115	983.233	4076069	1.30	2000	>RL
95	Mo	115	1.373	4992	1.74	2000	
107	Ag	115	0.060	683	13.69	500	
111	Cd	115	0.243	410	21.86	2000	
118	Sn	115	4.863	18728	0.96	2000	>RL
121	Sb	115	0.113	933	6.61	500	
137	Ba	115	1010.169	1761383	0.70	2000	>RL
205	Tl	209	0.335	8960	1.18	2000	
208	Pb	209	18.420	606587	0.94	2000	>RL

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	980731	0.82	1009769	97.12	70	120	
72	Ge	682099	0.23	736750	92.58	70	120	
115	In	6576135	0.97	7000350	93.94	70	120	
209	Bi	15298404	0.77	16359618	93.51	70	120	

Sample Report

Date Acquired	8/10/16 6:06 PM	Sample Name	1607294-62A
Data Batch	160810.b	Comment	SAMPICPMS_TSDOD1
Data File Name	165SMPL.d	Dilution	5

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
7	Li	45	111.679	1951	2.48	2000	>RL
9	Be	45	3.842	115	13.32	2000	>RL
11	B	45	152.562	2101	3.63	2000	>RL
23	Na	45	754.952	608763	1.23	25000	>RL
24	Mg	45	18830.779	7160447	1.11	25000	>RL
27	Al	45	67516.798	9553057	0.69	10000	OUTCAL
39	K	45	25654.994	9801960	2.29	25000	OUTCAL
44	Ca	45	81876.013	1748158	1.03	25000	OUTCAL
47	Ti	45	296.903	43188	3.04	2000	>RL
51	V	45	112.366	526265	1.40	2000	>RL
52	Cr	45	82.677	465286	1.12	2000	>RL
55	Mn	45	242.331	767858	1.41	2000	>RL
56	Fe	45	116169.789	555494360	1.18	10000	OUTCAL
59	Co	72	33.770	287435	0.22	2000	>RL
60	Ni	72	42.865	98727	0.83	2000	>RL
63	Cu	72	5.496	37270	1.55	2000	>RL
66	Zn	72	241.867	256559	1.45	2000	>RL
75	As	72	20.375	17357	1.24	2000	>RL
78	Se	72	5.549	357	9.91	2000	>RL
88	Sr	115	436.363	1818154	0.61	2000	>RL
95	Mo	115	0.878	3237	5.37	2000	
107	Ag	115	0.051	584	8.25	500	
111	Cd	115	0.096	169	26.65	2000	
118	Sn	115	6.380	24268	0.41	2000	>RL
121	Sb	115	0.046	584	6.59	500	
137	Ba	115	372.066	652002	0.11	2000	>RL
205	Tl	209	0.250	7000	2.34	2000	
208	Pb	209	18.840	632032	0.52	2000	>RL

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	995173	0.41	1009769	98.55	70	120	
72	Ge	697336	1.88	736750	94.65	70	120	
115	In	6608937	0.96	7000350	94.41	70	120	
209	Bi	15588309	0.83	16359618	95.29	70	120	

Sample Report

Date Acquired	8/10/16 6:08 PM	Sample Name	1607294-64A
Data Batch	160810.b	Comment	SAMPICPMS_TSDOD1
Data File Name	166SMPL.d	Dilution	5

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
7	Li	45	60.959	999	3.80	2000	>RL
9	Be	45	1.470	42	16.67	2000	>RL
11	B	45	106.334	1383	9.92	2000	>RL
23	Na	45	4497.570	3168686	1.05	25000	>RL
24	Mg	45	10823.912	3855301	0.89	25000	>RL
27	Al	45	47955.544	6355380	1.06	10000	OUTCAL
39	K	45	9245.768	3341909	1.56	25000	>RL
44	Ca	45	365650.712	7311744	2.20	25000	OUTCAL
47	Ti	45	238.610	32510	1.48	2000	>RL
51	V	45	82.411	362227	1.48	2000	>RL
52	Cr	45	41.229	217959	1.31	2000	>RL
55	Mn	45	280.669	832965	1.38	2000	>RL
56	Fe	45	43824.554	196264970	0.97	10000	OUTCAL
59	Co	72	12.698	102440	1.08	2000	>RL
60	Ni	72	23.376	51103	1.43	2000	>RL
63	Cu	72	13.556	83382	1.73	2000	>RL
66	Zn	72	105.512	106163	0.86	2000	>RL
75	As	72	18.920	15274	1.38	2000	>RL
78	Se	72	3.108	217	7.06	2000	>RL
88	Sr	115	2085.592	8475254	1.21	2000	OUTCAL
95	Mo	115	1.465	5216	6.12	2000	
107	Ag	115	0.094	1029	4.91	500	
111	Cd	115	0.233	384	10.84	2000	
118	Sn	115	4.718	17855	2.93	2000	>RL
121	Sb	115	3.571	18942	1.88	500	>RL
137	Ba	115	451.452	771774	1.83	2000	>RL
205	Tl	209	0.335	8819	3.07	2000	
208	Pb	209	274.032	8804367	0.99	2000	>RL

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	932134	0.98	1009769	92.31	70	120	
72	Ge	660164	0.98	736750	89.60	70	120	
115	In	6446941	1.17	7000350	92.09	70	120	
209	Bi	15043177	1.02	16359618	91.95	70	120	

Sample Report

Date Acquired	8/10/16 6:10 PM	Sample Name	1607294-65A
Data Batch	160810.b	Comment	SAMPICPMS_TSDOD1
Data File Name	167SMPL.d	Dilution	5

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
7	Li	45	65.323	1014	4.50	2000	>RL
9	Be	45	0.980	27	29.63	2000	>RL
11	B	45	92.765	1147	4.12	2000	>RL
23	Na	45	4904.298	3267419	1.05	25000	>RL
24	Mg	45	8513.612	2871160	0.50	25000	>RL
27	Al	45	36125.066	4533669	1.64	10000	OUTCAL
39	K	45	5325.368	1843110	1.37	25000	>RL
44	Ca	45	513431.988	9719874	1.55	25000	OUTCAL
47	Ti	45	142.558	18391	1.22	2000	>RL
51	V	45	58.495	244192	1.36	2000	>RL
52	Cr	45	30.042	150701	0.79	2000	>RL
55	Mn	45	97.844	275020	1.11	2000	>RL
56	Fe	45	32222.688	136657323	1.97	10000	OUTCAL
59	Co	72	5.931	45319	2.71	2000	>RL
60	Ni	72	12.956	26895	1.90	2000	>RL
63	Cu	72	7.385	44019	1.75	2000	>RL
66	Zn	72	54.878	52372	0.22	2000	>RL
75	As	72	9.400	7269	1.79	2000	>RL
78	Se	72	1.948	151	12.34	2000	>RL
88	Sr	115	4303.995	16519369	2.74	2000	OUTCAL
95	Mo	115	1.291	4350	2.17	2000	
107	Ag	115	0.103	1069	42.33	500	
111	Cd	115	0.063	106	9.12	2000	
118	Sn	115	4.455	15999	2.67	2000	>RL
121	Sb	115	0.218	1383	1.10	500	
137	Ba	115	329.893	532768	1.17	2000	>RL
205	Tl	209	0.196	5200	0.75	2000	
208	Pb	209	28.308	870445	1.09	2000	>RL

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	882589	1.38	1009769	87.41	70	120	
72	Ge	624153	0.26	736750	84.72	70	120	
115	In	6091857	2.65	7000350	87.02	70	120	
209	Bi	14326919	0.80	16359618	87.57	70	120	

Sample Report

Date Acquired	8/10/16 6:12 PM	Sample Name	1607294-66A
Data Batch	160810.b	Comment	SAMPICPMS_TSDOD1
Data File Name	168SMPL.d	Dilution	5

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
7	Li	45	72.578	1126	2.67	2000	>RL
9	Be	45	1.273	35	39.38	2000	>RL
11	B	45	143.701	1757	1.71	2000	>RL
23	Na	45	7821.664	5184230	0.84	25000	>RL
24	Mg	45	12103.430	4080812	0.37	25000	>RL
27	Al	45	50771.227	6369718	0.47	10000	OUTCAL
39	K	45	7604.801	2610795	1.24	25000	>RL
44	Ca	45	414508.371	7847442	2.86	25000	OUTCAL
47	Ti	45	134.128	17305	2.62	2000	>RL
51	V	45	77.188	321345	0.94	2000	>RL
52	Cr	45	43.539	217836	1.37	2000	>RL
55	Mn	45	79.988	224829	1.89	2000	>RL
56	Fe	45	56449.143	239340568	1.71	10000	OUTCAL
59	Co	72	6.365	48380	2.02	2000	>RL
60	Ni	72	14.050	28991	3.02	2000	>RL
63	Cu	72	9.419	55212	0.83	2000	>RL
66	Zn	72	70.471	66815	1.19	2000	>RL
75	As	72	16.412	12487	0.99	2000	>RL
78	Se	72	2.641	182	5.82	2000	>RL
88	Sr	115	4312.827	16793325	0.99	2000	OUTCAL
95	Mo	115	2.342	7943	1.12	2000	>RL
107	Ag	115	0.065	689	22.09	500	
111	Cd	115	0.046	80	15.02	2000	
118	Sn	115	5.376	19317	2.22	2000	>RL
121	Sb	115	0.168	1153	6.91	500	
137	Ba	115	313.543	513628	0.56	2000	>RL
205	Tl	209	0.228	5959	1.08	2000	
208	Pb	209	32.497	1003877	0.78	2000	>RL

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	882470	1.51	1009769	87.39	70	120	
72	Ge	621008	1.33	736750	84.29	70	120	
115	In	6178061	0.83	7000350	88.25	70	120	
209	Bi	14406071	2.19	16359618	88.06	70	120	

Sample Report

Date Acquired	8/10/16 6:14 PM	Sample Name	1607294-67A
Data Batch	160810.b	Comment	SAMPICPMS_TSDOD1
Data File Name	169SMPL.d	Dilution	5

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
7	Li	45	66.974	1069	3.46	2000	>RL
9	Be	45	2.913	80	4.04	2000	>RL
11	B	45	245.494	3063	5.72	2000	>RL
23	Na	45	21053.760	14278519	2.11	25000	>RL
24	Mg	45	21060.386	7303684	0.29	25000	>RL
27	Al	45	82527.257	10649555	2.68	10000	OUTCAL
39	K	45	11658.450	4090060	0.28	25000	>RL
44	Ca	45	197471.354	3844845	0.33	25000	OUTCAL
47	Ti	45	115.248	15292	2.87	2000	>RL
51	V	45	112.695	481365	0.83	2000	>RL
52	Cr	45	71.705	368205	1.01	2000	>RL
55	Mn	45	103.497	299174	1.11	2000	>RL
56	Fe	45	83936.299	366046359	2.14	10000	OUTCAL
59	Co	72	21.899	170248	0.29	2000	>RL
60	Ni	72	20.494	43231	0.53	2000	>RL
63	Cu	72	21.729	127415	0.84	2000	>RL
66	Zn	72	142.399	138053	0.92	2000	>RL
75	As	72	24.876	19305	0.78	2000	>RL
78	Se	72	5.701	333	10.89	2000	>RL
88	Sr	115	733.855	2814923	0.35	2000	>RL
95	Mo	115	2.304	7698	1.48	2000	>RL
107	Ag	115	0.042	446	1.88	500	
111	Cd	115	0.062	102	24.69	2000	
118	Sn	115	7.151	24893	0.49	2000	>RL
121	Sb	115	0.103	816	3.71	500	
137	Ba	115	453.081	731211	1.84	2000	>RL
205	Tl	209	0.377	9570	1.62	2000	
208	Pb	209	43.791	1372278	0.45	2000	>RL

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	907639	0.22	1009769	89.89	70	120	
72	Ge	636639	1.33	736750	86.41	70	120	
115	In	6086427	2.03	7000350	86.94	70	120	
209	Bi	14628816	0.52	16359618	89.42	70	120	

Sample Report

Date Acquired	8/10/16 6:16 PM	Sample Name	1607294-68A
Data Batch	160810.b	Comment	SAMPICPMS_TSDOD1
Data File Name	170SMPL.d	Dilution	5

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
7	Li	45	56.027	892	8.61	2000	>RL
9	Be	45	1.914	53	6.67	2000	>RL
11	B	45	91.698	1162	13.67	2000	>RL
23	Na	45	3307.570	2272864	0.43	25000	>RL
24	Mg	45	11015.289	3806971	1.27	25000	>RL
27	Al	45	52076.359	6696607	1.60	10000	OUTCAL
39	K	45	10978.231	3840849	1.63	25000	>RL
44	Ca	45	254034.541	4928741	1.37	25000	OUTCAL
47	Ti	45	265.711	35124	0.14	2000	>RL
51	V	45	86.617	369277	1.02	2000	>RL
52	Cr	45	46.238	237032	0.40	2000	>RL
55	Mn	45	377.344	1086505	0.78	2000	>RL
56	Fe	45	48618.342	211267516	1.63	10000	OUTCAL
59	Co	72	15.749	123429	0.43	2000	>RL
60	Ni	72	27.685	58760	0.35	2000	>RL
63	Cu	72	15.229	90723	1.15	2000	>RL
66	Zn	72	143.691	140372	0.72	2000	>RL
75	As	72	21.306	16690	0.71	2000	>RL
78	Se	72	3.533	231	14.32	2000	>RL
88	Sr	115	1416.129	5489504	0.98	2000	>RL
95	Mo	115	1.865	6310	3.75	2000	
107	Ag	115	0.098	1030	9.62	500	
111	Cd	115	0.298	467	10.08	2000	
118	Sn	115	5.010	18007	1.90	2000	>RL
121	Sb	115	3.684	18629	1.80	500	>RL
137	Ba	115	444.721	725167	0.47	2000	>RL
205	Tl	209	0.401	10144	3.68	2000	
208	Pb	209	266.563	8337944	0.94	2000	>RL

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	904438	0.61	1009769	89.57	70	120	
72	Ge	641498	0.40	736750	87.07	70	120	
115	In	6149970	1.31	7000350	87.85	70	120	
209	Bi	14645362	0.36	16359618	89.52	70	120	

Continuing Calibration Verification (CCV) Report

Date Acquired	8/10/2016 18:18	Sample Name	CCV7-140402
Data Batch	160810.b	Comment	CCV ICPMS_TW
Data File Name	171_CCV.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
7	Li	45	205.622	3147	3.88	200	102.8	90	110	
9	Be	45	216.649	5592	2.38	200	108.3	90	110	
11	B	45	219.300	2635	4.02	200	109.7	90	110	
23	Na	45	5447.562	3584561	0.37	5000	109.0	90	110	
24	Mg	45	5324.852	1776260	0.51	5000	106.5	90	110	
27	Al	45	5163.898	641698	0.53	5000	103.3	90	110	
39	K	45	5296.429	1813103	1.25	5000	105.9	90	110	
44	Ca	45	4999.203	93993	1.31	5000	100.0	90	110	
47	Ti	45	203.646	25978	1.03	200	101.8	90	110	
51	V	45	209.734	859281	0.56	200	104.9	90	110	
52	Cr	45	208.623	1027941	1.04	200	104.3	90	110	
55	Mn	45	207.850	577629	0.71	200	103.9	90	110	
56	Fe	45	5245.281	22002662	0.89	5000	104.9	90	110	
59	Co	72	213.096	1638888	0.34	200	106.5	90	110	
60	Ni	72	213.977	444446	0.41	200	107.0	90	110	
63	Cu	72	215.417	1229483	0.41	200	107.7	90	110	
66	Zn	72	215.713	206871	0.33	200	107.9	90	110	
75	As	72	217.387	165542	1.29	200	108.7	90	110	
78	Se	72	210.944	10026	1.89	200	105.5	90	110	
88	Sr	115	200.294	766644	1.21	200	100.1	90	110	
95	Mo	115	203.657	671686	1.14	200	101.8	90	110	
107	Ag	115	207.773	2091298	1.02	200	103.9	90	110	
111	Cd	115	205.979	312639	0.48	200	103.0	90	110	
118	Sn	115	201.516	665670	1.21	200	100.8	90	110	
121	Sb	115	207.833	1020079	0.74	200	103.9	90	110	
137	Ba	115	207.370	333771	0.82	200	103.7	90	110	
205	Tl	209	201.372	4701452	1.19	200	100.7	90	110	
208	Pb	209	204.906	6346200	1.16	200	102.5	90	110	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	872843	1.10	1009769	86.44	70	120	
72	Ge	630312	0.87	736750	85.55	70	120	
115	In	6069922	1.27	7000350	86.71	70	120	
209	Bi	14501243	1.32	16359618	88.64	70	120	

Low Level Calibration Verification (LLCV) Report

Date Acquired	8/10/2016 18:22	Sample Name	LCVL7-140402
Data Batch	160810.b	Comment	LCVLICPMS_TW
Data File Name	173LCCV.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
7	Li	45	11.217	185	4.34	10	112.2	70	130	
9	Be	45	1.223	35	10.13	1	122.3	70	130	
11	B	45	37.468	502	6.31	20	187.3	70	130	Fail
23	Na	45	139.159	140341	0.51	100	139.2	70	130	Fail
24	Mg	45	108.233	38612	1.27	100	108.2	70	130	
27	Al	45	111.537	15564	1.01	100	111.5	70	130	
39	K	45	128.788	95622	1.17	100	128.8	70	130	
44	Ca	45	129.145	2960	3.95	100	129.1	70	130	
47	Ti	45	5.322	719	9.84	5	106.4	70	130	
51	V	45	1.025	7065	3.82	1	102.5	70	130	
52	Cr	45	5.254	28421	2.38	5	105.1	70	130	
55	Mn	45	5.351	15767	0.84	5	107.0	70	130	
56	Fe	45	116.544	519913	1.27	100	116.5	70	130	
59	Co	72	5.458	44112	0.80	5	109.2	70	130	
60	Ni	72	5.524	12283	1.10	5	110.5	70	130	
63	Cu	72	5.153	33232	2.03	5	103.1	70	130	
66	Zn	72	5.650	6023	5.58	5	113.0	70	130	
75	As	72	5.605	4663	0.46	5	112.1	70	130	
78	Se	72	5.894	355	12.04	5	117.9	70	130	
88	Sr	115	5.324	22006	1.46	5	106.5	70	130	
95	Mo	115	4.972	17424	1.50	5	99.4	70	130	
107	Ag	115	2.072	22090	0.91	2	103.6	70	130	
111	Cd	115	1.069	1726	3.87	1	106.9	70	130	
118	Sn	115	5.021	18836	1.47	5	100.4	70	130	
121	Sb	115	2.021	10816	0.42	2	101.1	70	130	
137	Ba	115	5.083	8691	1.58	5	101.7	70	130	
205	Tl	209	1.015	25410	0.61	1	101.5	70	130	
208	Pb	209	1.022	38003	2.35	1	102.2	70	130	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	917058	0.75	1009769	90.82	70	120	
72	Ge	659958	0.40	736750	89.58	70	120	
115	In	6419721	0.91	7000350	91.71	70	120	
209	Bi	15118530	0.38	16359618	92.41	70	120	

Continuing Calibration Blank (CCB) Report

Date Acquired	8/10/2016 18:29	Sample Name	CCB7-140402
Data Batch	160810.b	Comment	CCB ICPMS_TW
Data File Name	176_CCB.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	MDL S	MDL Aq	QC Flag
7	Li	45	0.432	11	48.6	2	5	
9	Be	45	-0.056	0	#DIV/0!	0.4	0.3	
11	B	45	13.772	204	9.3	10	10	FailAq FailSoil
23	Na	45	23.816	60828	0.8	50	100	
24	Mg	45	-0.436	532	13.5	50	100	
27	Al	45	3.442	1455	4.3	50	10	
39	K	45	18.405	56307	1.0	50	100	
44	Ca	45	11.849	645	13.8	50	100	
47	Ti	45	0.014	8	49.5	4	3	
51	V	45	-0.054	2405	3.7	4	3	
52	Cr	45	-0.038	1041	2.7	2	2	
55	Mn	45	-0.007	124	12.1	2	3	
56	Fe	45	1.522	12958	3.3	50	50	
59	Co	72	-0.009	90	44.4	2	3	
60	Ni	72	-0.032	203	4.3	2	3	
63	Cu	72	-0.229	1114	8.0	2	2	
66	Zn	72	-0.070	287	4.2	4	2	
75	As	72	-0.057	152	10.9	2	2	
78	Se	72	0.154	70	5.8	1	2	
88	Sr	115	0.095	830	2.8	4	3	
95	Mo	115	0.012	122	17.5	2	2	
107	Ag	115	0.019	224	7.0	0.4	1	
111	Cd	115	0.004	16	81.1	0.4	0.3	
118	Sn	115	-0.238	488	6.2	4	3	
121	Sb	115	-0.024	199	9.2	2	0.8	
137	Ba	115	0.036	100	17.6	2	3	
205	Tl	209	-0.013	383	17.8	2	0.5	
208	Pb	209	-0.059	3040	4.2	0.4	0.3	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	906234	0.47	1009769	89.75	70	120	
72	Ge	651314	1.17	736750	88.40	70	120	
115	In	6303264	0.75	7000350	90.04	70	120	
209	Bi	14763397	1.23	16359618	90.24	70	120	

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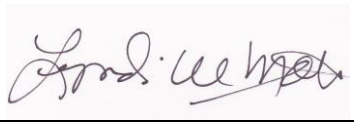

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DHL ANALYTICAL

2300 Double Creek Dr. ■ Round Rock, TX 78664
Phone (512) 388-8222 ■ FAX (512) 388-8229
Web: www.dhlanalytical.com
E-Mail: login@dhlanalytical.com

№ 72224

CHAIN-OF-CUSTODY

CLIENT: ARCADIS
ADDRESS: 8725 Rosehill Suite 350 Lenexa, KS 66215
PHONE: 913-492-0900 FAX/E-MAIL: Alex.Walter@arcadis.com
DATA REPORTED TO: Alex Walter
ADDITIONAL REPORT COPIES TO:

DATE: 7-26-16 PAGE 1 OF 2
PO #: 04285081.0000.00044 DHL WORK ORDER #: 1607314
PROJECT LOCATION OR NAME: Laredo SGR
CLENT PROJECT #: 04285081.0000.00044 COLLECTOR: Jordan Boem

Authorize 5% surcharge for TRRP Report? ☐ Yes ☐ No

S=SOIL W=WATER A=AIR L=LIQUID SE=SEDIMENT P=PAINT SL=SLUDGE O=OTHER SO=SOLID

ANALYSES: BTEX ☐ MTBE ☐ (METHOD 8021) TPH 1005 ☐ TPH 1006 ☐ HOLD 1006 ☐ GRO (METHOD 8015) ☐ DRO (METHOD 8105) ☐ VOC 8260 ☐ VOC 624 ☐ VOC 8260/5035 ☐ SVOC 8270 ☐ PAH 8270 ☐ HOLD PAH ☐ SVOC 625 ☐ 8270 PEST ☐ 625 PEST/PCB ☐ 608 PCB ☐ 8270 O-P PEST ☐ 8082 PCB ☐ 8270 PCB ☐ 8321 HERB ☐ T PHOS, AMMONIA ☐ METALS 6020 ☐ METALS 200.8 ☐ DISS. METALS ☐ RCRA ☐ TX11 ☐ 1 Pack ☐ PH ☐ HEX CHROM ☐ ALKALINITY ☐ COD ☐ CHLORIDE ☐ ANIONS ☐ TCLP-SVOC ☐ VOC ☐ PEST ☐ HERB ☐ TCLP-METALS ☐ RCRA 8 ☐ TX-11 ☐ Pb ☐ RCI ☐ FLASHPOINT ☐ DGAS ☐ TDS ☐ TSS ☐ % MOISTURE ☐ CYANIDE ☐

Field Sample I.D.	DHL Lab #	Date	Time	Matrix	Container Type	# of Containers	HCl	HNO_3	H_2SO_4 ☐ NaOH ☐	ICE	UNPRESERVED	BTEX	TPH 1005	GRO	VOC 8260	SVOC 8270	8270 PEST	8270 O-P PEST	8321 HERB	METALS 6020	RCRA	PH	CHLORIDE	TCLP-SVOC	TCLP-METALS	RCI	TDS	FIELD NOTES
SGR-DU129(0-2)-A		7-26-16	1112	S	Bag	1				X						X					X							Cooler lost by Fed ex
SGR-DU129(2-4)-A		7-26-16	1114	S	Bag	1				X						X					X							
SGR-DU129(4-6)-A		7-26-16	1116	S	Bag	1				X						X					X							
SGR-DU129(6-8)-A		7-26-16	1118	S	Bag	1				X						X					X							
SGR-DU129(0-2)-B		7-26-16	1122	S	Bag	1				X						X					X							
SGR-DU129(2-4)-B		7-26-16	1124	S	Bag	1				X						X					X							
SGR-DU129(4-6)-B	01	7-26-16	1126	S	Bag	1				X						X					X							
SGR-DU129(6-8)-B	02	7-26-16	1126	S	Bag	1				X						X					X							
SGR-DU129(0-2)-C	03	7-26-16	1132	S	Bag	1				X						X					X							
SGR-DU129(2-4)-C	04	7-26-16	1134	S	Bag	1				X						X					X							
SGR-DU129(4-6)-C	05	7-26-16	1136	S	Bag	1				X						X					X							
SGR-DU129(6-8)-C	06	7-26-16	1138	S	Bag	1				X						X					X							
FB01(2016072E)	07	7-26-16	1145	W	Poly/Glass	2		X		X						X					X							

RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)
Jordan Boem	7-26-16/1700	Fedex
Fedex	7/27/16 943	[signature]

☐ DHL DISPOSAL @ $5.00 each ☐ Return

TURN AROUND TIME
RUSH ☐ CALL FIRST
1 DAY ☐ CALL FIRST
2 DAY ☐
NORMAL ☐
OTHER ☐

LABORATORY USE ONLY:
RECEIVING TEMP: 1.1 THERM #: 78
CUSTODY SEALS: ☐ BROKEN ☑ INTACT ☐ NOT USED
CARRIER: ☐ LONE STAR ☑ FEDEX ☐ UPS ☐ OTHER
☐ COURIER DELIVERY
☐ HAND DELIVERED

DHL Analytical, Inc.

Sample Receipt Checklist

Client Name Arcadis | Date Received: 7/27/2016

Work Order Number 1607314 | Received by JB

Checklist completed by: _____ 7/28/2016 (Signature / Date) | Reviewed by _____ 7/28/2016 (Initials / Date)

Carrier name FedEx 1day

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shippping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	1.1 °C
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH<2 acceptable upon receipt?	Yes ☑	No ☐	NA ☐ LOT # 8086
	Adjusted? WS		Checked by _____
Water - ph>9 (S) or ph>12 (CN) acceptable upon receipt?	Yes ☐	No ☐	NA ☑ LOT #
	Adjusted? _____		Checked by _____

Any No response must be detailed in the comments section below.

Client contacted Arcadis Date contacted: 7/27/16 Person contacted Alex Walter

Contacted by: JBarker Regarding: Cooler 1 of 2

Comments: Fed ex lost cooler 1 and the samples SGR-DW129(0.2)-A thru SGR-DW129(2.4)-B were never delivered. Client to aware of the cooler being lost.

Corrective Action _____

DHL Analytical, Inc.

Date: *17-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU129(4-6)-B
Project:	Laredo SGR	**Lab ID:**	1607314-01
Project No:	04285081.0000.00044	**Collection Date:**	07/26/16 11:26 AM
Lab Order:	1607314	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **CVD**
Lead	6.55	0.0990	0.297	0.149		mg/Kg-dry	5	08/10/16 05:43 PM
IS: Bismuth	80.6	0	30-120	0		%REC	5	08/10/16 05:43 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/08/16 07:38 PM
Acenaphthylene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/08/16 07:38 PM
Anthracene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/08/16 07:38 PM
Benzo[a]anthracene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/08/16 07:38 PM
Benzo[a]pyrene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/08/16 07:38 PM
Benzo[b]fluoranthene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/08/16 07:38 PM
Benzo[e]pyrene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/08/16 07:38 PM
Benzo[g,h,i]perylene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/08/16 07:38 PM
Benzo[j]fluoranthene	0.0744	0.0496	0.0992	0.0744	NU	mg/Kg-dry	10	08/08/16 07:38 PM
Benzo[k]fluoranthene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/08/16 07:38 PM
Chrysene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/08/16 07:38 PM
Dibenz[a,h]anthracene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/08/16 07:38 PM
Fluoranthene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/08/16 07:38 PM
Fluorene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/08/16 07:38 PM
Indeno[1,2,3-cd]pyrene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/08/16 07:38 PM
Phenanthrene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/08/16 07:38 PM
Pyrene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/08/16 07:38 PM
IS: Acenaphthene-d10	136	0	50-200	0		%REC	10	08/08/16 07:38 PM
IS: Chrysene-d12	114	0	50-200	0		%REC	10	08/08/16 07:38 PM
IS: Naphthalene-d8	106	0	50-200	0		%REC	10	08/08/16 07:38 PM
IS: Perylene-d12	116	0	50-200	0		%REC	10	08/08/16 07:38 PM
IS: Phenanthrene-d10	97.6	0	50-200	0		%REC	10	08/08/16 07:38 PM
Surr: 2-Fluorobiphenyl	76.1	0	46-115	0		%REC	10	08/08/16 07:38 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU129(4-6)-B
Project:	Laredo SGR	**Lab ID:**	1607314-01
Project No:	04285081.0000.00044	**Collection Date:**	07/26/16 11:26 AM
Lab Order:	1607314	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	85.4	0	58-133	0		%REC	10	08/08/16 07:38 PM

Qualifiers:	*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
	C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
	E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
	MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
	RL	Reporting Limit	S	Spike Recovery outside control limits
	N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *17-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU129(6-8)-B
Project:	Laredo SGR	**Lab ID:**	1607314-02
Project No:	04285081.0000.00044	**Collection Date:**	07/26/16 11:26 AM
Lab Order:	1607314	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **CVD**
Lead	6.45	0.0885	0.265	0.133		mg/Kg-dry	5	08/10/16 05:49 PM
IS: Bismuth	83.4	0	30-120	0		%REC	5	08/10/16 05:49 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0729	0.0486	0.0972	0.0729	U	mg/Kg-dry	10	08/08/16 08:18 PM
Acenaphthylene	0.0729	0.0486	0.0972	0.0729	U	mg/Kg-dry	10	08/08/16 08:18 PM
Anthracene	0.0729	0.0486	0.0972	0.0729	U	mg/Kg-dry	10	08/08/16 08:18 PM
Benzo[a]anthracene	0.0729	0.0486	0.0972	0.0729	U	mg/Kg-dry	10	08/08/16 08:18 PM
Benzo[a]pyrene	0.0729	0.0486	0.0972	0.0729	U	mg/Kg-dry	10	08/08/16 08:18 PM
Benzo[b]fluoranthene	0.0729	0.0486	0.0972	0.0729	U	mg/Kg-dry	10	08/08/16 08:18 PM
Benzo[e]pyrene	0.0729	0.0486	0.0972	0.0729	U	mg/Kg-dry	10	08/08/16 08:18 PM
Benzo[g,h,i]perylene	0.0729	0.0486	0.0972	0.0729	U	mg/Kg-dry	10	08/08/16 08:18 PM
Benzo[j]fluoranthene	0.0729	0.0486	0.0972	0.0729	NU	mg/Kg-dry	10	08/08/16 08:18 PM
Benzo[k]fluoranthene	0.0729	0.0486	0.0972	0.0729	U	mg/Kg-dry	10	08/08/16 08:18 PM
Chrysene	0.0729	0.0486	0.0972	0.0729	U	mg/Kg-dry	10	08/08/16 08:18 PM
Dibenz[a,h]anthracene	0.0729	0.0486	0.0972	0.0729	U	mg/Kg-dry	10	08/08/16 08:18 PM
Fluoranthene	0.0729	0.0486	0.0972	0.0729	U	mg/Kg-dry	10	08/08/16 08:18 PM
Fluorene	0.0729	0.0486	0.0972	0.0729	U	mg/Kg-dry	10	08/08/16 08:18 PM
Indeno[1,2,3-cd]pyrene	0.0729	0.0486	0.0972	0.0729	U	mg/Kg-dry	10	08/08/16 08:18 PM
Phenanthrene	0.0729	0.0486	0.0972	0.0729	U	mg/Kg-dry	10	08/08/16 08:18 PM
Pyrene	0.0729	0.0486	0.0972	0.0729	U	mg/Kg-dry	10	08/08/16 08:18 PM
IS: Acenaphthene-d10	138	0	50-200	0		%REC	10	08/08/16 08:18 PM
IS: Chrysene-d12	116	0	50-200	0		%REC	10	08/08/16 08:18 PM
IS: Naphthalene-d8	110	0	50-200	0		%REC	10	08/08/16 08:18 PM
IS: Perylene-d12	118	0	50-200	0		%REC	10	08/08/16 08:18 PM
IS: Phenanthrene-d10	98.9	0	50-200	0		%REC	10	08/08/16 08:18 PM
Surr: 2-Fluorobiphenyl	75.1	0	46-115	0		%REC	10	08/08/16 08:18 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU129(6-8)-B
Project:	Laredo SGR	**Lab ID:**	1607314-02
Project No:	04285081.0000.00044	**Collection Date:**	07/26/16 11:26 AM
Lab Order:	1607314	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	84.8	0	58-133	0		%REC	10	08/08/16 08:18 PM

Qualifiers:				
	*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
	C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
	E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
	MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
	RL	Reporting Limit	S	Spike Recovery outside control limits
	N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *17-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU129(0-2)-C
Project:	Laredo SGR	**Lab ID:**	1607314-03
Project No:	04285081.0000.00044	**Collection Date:**	07/26/16 11:32 AM
Lab Order:	1607314	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **CVD**
Lead	18.9	0.0855	0.256	0.128		mg/Kg-dry	5	08/10/16 04:26 PM
IS: Bismuth	88.6	0	30-120	0		%REC	5	08/10/16 04:26 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0746	0.0497	0.0994	0.0746	U	mg/Kg-dry	10	08/08/16 08:58 PM
Acenaphthylene	0.0746	0.0497	0.0994	0.0746	U	mg/Kg-dry	10	08/08/16 08:58 PM
Anthracene	0.0746	0.0497	0.0994	0.0746	U	mg/Kg-dry	10	08/08/16 08:58 PM
Benzo[a]anthracene	0.0746	0.0497	0.0994	0.0746	U	mg/Kg-dry	10	08/08/16 08:58 PM
Benzo[a]pyrene	0.0530	0.0497	0.0994	0.0746	J	mg/Kg-dry	10	08/08/16 08:58 PM
Benzo[b]fluoranthene	0.0507	0.0497	0.0994	0.0746	J	mg/Kg-dry	10	08/08/16 08:58 PM
Benzo[e]pyrene	0.0746	0.0497	0.0994	0.0746	U	mg/Kg-dry	10	08/08/16 08:58 PM
Benzo[g,h,i]perylene	0.0746	0.0497	0.0994	0.0746	U	mg/Kg-dry	10	08/08/16 08:58 PM
Benzo[j]fluoranthene	0.0746	0.0497	0.0994	0.0746	NU	mg/Kg-dry	10	08/08/16 08:58 PM
Benzo[k]fluoranthene	0.0746	0.0497	0.0994	0.0746	U	mg/Kg-dry	10	08/08/16 08:58 PM
Chrysene	0.0746	0.0497	0.0994	0.0746	U	mg/Kg-dry	10	08/08/16 08:58 PM
Dibenz[a,h]anthracene	0.0746	0.0497	0.0994	0.0746	U	mg/Kg-dry	10	08/08/16 08:58 PM
Fluoranthene	0.0617	0.0497	0.0994	0.0746	J	mg/Kg-dry	10	08/08/16 08:58 PM
Fluorene	0.0746	0.0497	0.0994	0.0746	U	mg/Kg-dry	10	08/08/16 08:58 PM
Indeno[1,2,3-cd]pyrene	0.0746	0.0497	0.0994	0.0746	U	mg/Kg-dry	10	08/08/16 08:58 PM
Phenanthrene	0.0746	0.0497	0.0994	0.0746	U	mg/Kg-dry	10	08/08/16 08:58 PM
Pyrene	0.0584	0.0497	0.0994	0.0746	J	mg/Kg-dry	10	08/08/16 08:58 PM
IS: Acenaphthene-d10	133	0	50-200	0		%REC	10	08/08/16 08:58 PM
IS: Chrysene-d12	115	0	50-200	0		%REC	10	08/08/16 08:58 PM
IS: Naphthalene-d8	108	0	50-200	0		%REC	10	08/08/16 08:58 PM
IS: Perylene-d12	117	0	50-200	0		%REC	10	08/08/16 08:58 PM
IS: Phenanthrene-d10	99.8	0	50-200	0		%REC	10	08/08/16 08:58 PM
Surr: 2-Fluorobiphenyl	74.9	0	46-115	0		%REC	10	08/08/16 08:58 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU129(0-2)-C
Project:	Laredo SGR	**Lab ID:**	1607314-03
Project No:	04285081.0000.00044	**Collection Date:**	07/26/16 11:32 AM
Lab Order:	1607314	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	82.6	0	58-133	0		%REC	10	08/08/16 08:58 PM

Qualifiers:				
	*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
	C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
	E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
	MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
	RL	Reporting Limit	S	Spike Recovery outside control limits
	N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *17-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU129(2-4)-C
Project:	Laredo SGR	**Lab ID:**	1607314-04
Project No:	04285081.0000.00044	**Collection Date:**	07/26/16 11:34 AM
Lab Order:	1607314	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **CVD**
Lead	8.09	0.0952	0.286	0.143		mg/Kg-dry	5	08/10/16 06:36 PM
IS: Bismuth	80.4	0	30-120	0		%REC	5	08/10/16 06:36 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/09/16 12:21 AM
Acenaphthylene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/09/16 12:21 AM
Anthracene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/09/16 12:21 AM
Benzo[a]anthracene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/09/16 12:21 AM
Benzo[a]pyrene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/09/16 12:21 AM
Benzo[b]fluoranthene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/09/16 12:21 AM
Benzo[e]pyrene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/09/16 12:21 AM
Benzo[g,h,i]perylene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/09/16 12:21 AM
Benzo[j]fluoranthene	0.0744	0.0496	0.0992	0.0744	NU	mg/Kg-dry	10	08/09/16 12:21 AM
Benzo[k]fluoranthene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/09/16 12:21 AM
Chrysene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/09/16 12:21 AM
Dibenz[a,h]anthracene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/09/16 12:21 AM
Fluoranthene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/09/16 12:21 AM
Fluorene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/09/16 12:21 AM
Indeno[1,2,3-cd]pyrene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/09/16 12:21 AM
Phenanthrene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/09/16 12:21 AM
Pyrene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/09/16 12:21 AM
IS: Acenaphthene-d10	139	0	50-200	0		%REC	10	08/09/16 12:21 AM
IS: Chrysene-d12	116	0	50-200	0		%REC	10	08/09/16 12:21 AM
IS: Naphthalene-d8	109	0	50-200	0		%REC	10	08/09/16 12:21 AM
IS: Perylene-d12	119	0	50-200	0		%REC	10	08/09/16 12:21 AM
IS: Phenanthrene-d10	100	0	50-200	0		%REC	10	08/09/16 12:21 AM
Surr: 2-Fluorobiphenyl	72.2	0	46-115	0		%REC	10	08/09/16 12:21 AM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU129(2-4)-C
Project:	Laredo SGR	**Lab ID:**	1607314-04
Project No:	04285081.0000.00044	**Collection Date:**	07/26/16 11:34 AM
Lab Order:	1607314	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	81.0	0	58-133	0		%REC	10	08/09/16 12:21 AM

Qualifiers:	*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
	C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
	E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
	MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
	RL	Reporting Limit	S	Spike Recovery outside control limits
	N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *17-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU129(4-6)-C
Project:	Laredo SGR	**Lab ID:**	1607314-05
Project No:	04285081.0000.00044	**Collection Date:**	07/26/16 11:36 AM
Lab Order:	1607314	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **CVD**
Lead	15.1	0.100	0.300	0.150		mg/Kg-dry	5	08/10/16 06:42 PM
IS: Bismuth	80.6	0	30-120	0		%REC	5	08/10/16 06:42 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0743	0.0496	0.0991	0.0743	U	mg/Kg-dry	10	08/09/16 01:02 AM
Acenaphthylene	0.0743	0.0496	0.0991	0.0743	U	mg/Kg-dry	10	08/09/16 01:02 AM
Anthracene	0.0743	0.0496	0.0991	0.0743	U	mg/Kg-dry	10	08/09/16 01:02 AM
Benzo[a]anthracene	0.0743	0.0496	0.0991	0.0743	U	mg/Kg-dry	10	08/09/16 01:02 AM
Benzo[a]pyrene	0.0743	0.0496	0.0991	0.0743	U	mg/Kg-dry	10	08/09/16 01:02 AM
Benzo[b]fluoranthene	0.0743	0.0496	0.0991	0.0743	U	mg/Kg-dry	10	08/09/16 01:02 AM
Benzo[e]pyrene	0.0743	0.0496	0.0991	0.0743	U	mg/Kg-dry	10	08/09/16 01:02 AM
Benzo[g,h,i]perylene	0.0743	0.0496	0.0991	0.0743	U	mg/Kg-dry	10	08/09/16 01:02 AM
Benzo[j]fluoranthene	0.0743	0.0496	0.0991	0.0743	NU	mg/Kg-dry	10	08/09/16 01:02 AM
Benzo[k]fluoranthene	0.0743	0.0496	0.0991	0.0743	U	mg/Kg-dry	10	08/09/16 01:02 AM
Chrysene	0.0743	0.0496	0.0991	0.0743	U	mg/Kg-dry	10	08/09/16 01:02 AM
Dibenz[a,h]anthracene	0.0743	0.0496	0.0991	0.0743	U	mg/Kg-dry	10	08/09/16 01:02 AM
Fluoranthene	0.0743	0.0496	0.0991	0.0743	U	mg/Kg-dry	10	08/09/16 01:02 AM
Fluorene	0.0743	0.0496	0.0991	0.0743	U	mg/Kg-dry	10	08/09/16 01:02 AM
Indeno[1,2,3-cd]pyrene	0.0743	0.0496	0.0991	0.0743	U	mg/Kg-dry	10	08/09/16 01:02 AM
Phenanthrene	0.0743	0.0496	0.0991	0.0743	U	mg/Kg-dry	10	08/09/16 01:02 AM
Pyrene	0.0743	0.0496	0.0991	0.0743	U	mg/Kg-dry	10	08/09/16 01:02 AM
IS: Acenaphthene-d10	135	0	50-200	0		%REC	10	08/09/16 01:02 AM
IS: Chrysene-d12	112	0	50-200	0		%REC	10	08/09/16 01:02 AM
IS: Naphthalene-d8	106	0	50-200	0		%REC	10	08/09/16 01:02 AM
IS: Perylene-d12	114	0	50-200	0		%REC	10	08/09/16 01:02 AM
IS: Phenanthrene-d10	96.5	0	50-200	0		%REC	10	08/09/16 01:02 AM
Surr: 2-Fluorobiphenyl	77.9	0	46-115	0		%REC	10	08/09/16 01:02 AM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU129(4-6)-C
Project:	Laredo SGR	**Lab ID:**	1607314-05
Project No:	04285081.0000.00044	**Collection Date:**	07/26/16 11:36 AM
Lab Order:	1607314	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	86.1	0	58-133	0		%REC	10	08/09/16 01:02 AM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *17-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU129(6-8)-C
Project:	Laredo SGR	**Lab ID:**	1607314-06
Project No:	04285081.0000.00044	**Collection Date:**	07/26/16 11:38 AM
Lab Order:	1607314	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **CVD**
Lead	7.35	0.0917	0.275	0.138		mg/Kg-dry	5	08/10/16 06:48 PM
IS: Bismuth	79.9	0	30-120	0		%REC	5	08/10/16 06:48 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0737	0.0491	0.0982	0.0737	U	mg/Kg-dry	10	08/09/16 01:43 AM
Acenaphthylene	0.0737	0.0491	0.0982	0.0737	U	mg/Kg-dry	10	08/09/16 01:43 AM
Anthracene	0.0737	0.0491	0.0982	0.0737	U	mg/Kg-dry	10	08/09/16 01:43 AM
Benzo[a]anthracene	0.0737	0.0491	0.0982	0.0737	U	mg/Kg-dry	10	08/09/16 01:43 AM
Benzo[a]pyrene	0.0737	0.0491	0.0982	0.0737	U	mg/Kg-dry	10	08/09/16 01:43 AM
Benzo[b]fluoranthene	0.0737	0.0491	0.0982	0.0737	U	mg/Kg-dry	10	08/09/16 01:43 AM
Benzo[e]pyrene	0.0737	0.0491	0.0982	0.0737	U	mg/Kg-dry	10	08/09/16 01:43 AM
Benzo[g,h,i]perylene	0.0737	0.0491	0.0982	0.0737	U	mg/Kg-dry	10	08/09/16 01:43 AM
Benzo[j]fluoranthene	0.0737	0.0491	0.0982	0.0737	NU	mg/Kg-dry	10	08/09/16 01:43 AM
Benzo[k]fluoranthene	0.0737	0.0491	0.0982	0.0737	U	mg/Kg-dry	10	08/09/16 01:43 AM
Chrysene	0.0737	0.0491	0.0982	0.0737	U	mg/Kg-dry	10	08/09/16 01:43 AM
Dibenz[a,h]anthracene	0.0737	0.0491	0.0982	0.0737	U	mg/Kg-dry	10	08/09/16 01:43 AM
Fluoranthene	0.0737	0.0491	0.0982	0.0737	U	mg/Kg-dry	10	08/09/16 01:43 AM
Fluorene	0.0737	0.0491	0.0982	0.0737	U	mg/Kg-dry	10	08/09/16 01:43 AM
Indeno[1,2,3-cd]pyrene	0.0737	0.0491	0.0982	0.0737	U	mg/Kg-dry	10	08/09/16 01:43 AM
Phenanthrene	0.0737	0.0491	0.0982	0.0737	U	mg/Kg-dry	10	08/09/16 01:43 AM
Pyrene	0.0737	0.0491	0.0982	0.0737	U	mg/Kg-dry	10	08/09/16 01:43 AM
IS: Acenaphthene-d10	138	0	50-200	0		%REC	10	08/09/16 01:43 AM
IS: Chrysene-d12	116	0	50-200	0		%REC	10	08/09/16 01:43 AM
IS: Naphthalene-d8	109	0	50-200	0		%REC	10	08/09/16 01:43 AM
IS: Perylene-d12	118	0	50-200	0		%REC	10	08/09/16 01:43 AM
IS: Phenanthrene-d10	101	0	50-200	0		%REC	10	08/09/16 01:43 AM
Surr: 2-Fluorobiphenyl	72.7	0	46-115	0		%REC	10	08/09/16 01:43 AM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU129(6-8)-C
Project:	Laredo SGR	**Lab ID:**	1607314-06
Project No:	04285081.0000.00044	**Collection Date:**	07/26/16 11:38 AM
Lab Order:	1607314	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	81.4	0	58-133	0		%REC	10	08/09/16 01:43 AM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	EB01(20160726)
Project:	Laredo SGR	**Lab ID:**	1607314-07
Project No:	04285081.0000.00044	**Collection Date:**	07/26/16 11:45 AM
Lab Order:	1607314	**Matrix:**	EQUIP BLANK

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER			**SW6020A**					Analyst: **CVD**
Lead	0.000900	0.000300	0.00100	0.000900	U	mg/L	1	08/10/16 02:10 AM
IS: Bismuth	89.1	0	30-120	0		%REC	1	08/10/16 02:10 AM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Acenaphthene	0.0000789	0.0000493	0.0000987	0.0000789	U	mg/L	1	08/03/16 06:27 PM
Acenaphthylene	0.0000789	0.0000493	0.0000987	0.0000789	U	mg/L	1	08/03/16 06:27 PM
Anthracene	0.0000789	0.0000493	0.0000987	0.0000789	U	mg/L	1	08/03/16 06:27 PM
Benzo[a]anthracene	0.0000789	0.0000493	0.0000987	0.0000789	U	mg/L	1	08/03/16 06:27 PM
Benzo[a]pyrene	0.0000789	0.0000493	0.0000987	0.0000789	U	mg/L	1	08/03/16 06:27 PM
Benzo[b]fluoranthene	0.0000789	0.0000493	0.0000987	0.0000789	U	mg/L	1	08/03/16 06:27 PM
Benzo[e]pyrene	0.0000789	0.0000493	0.0000987	0.0000789	U	mg/L	1	08/03/16 06:27 PM
Benzo[g,h,i]perylene	0.0000789	0.0000493	0.0000987	0.0000789	U	mg/L	1	08/03/16 06:27 PM
Benzo[j]fluoranthene	0.0000789	0.0000493	0.0000987	0.0000789	NU	mg/L	1	08/03/16 06:27 PM
Benzo[k]fluoranthene	0.0000789	0.0000493	0.0000987	0.0000789	U	mg/L	1	08/03/16 06:27 PM
Chrysene	0.0000789	0.0000493	0.0000987	0.0000789	U	mg/L	1	08/03/16 06:27 PM
Dibenz[a,h]anthracene	0.0000789	0.0000493	0.0000987	0.0000789	U	mg/L	1	08/03/16 06:27 PM
Fluoranthene	0.0000789	0.0000493	0.0000987	0.0000789	U	mg/L	1	08/03/16 06:27 PM
Fluorene	0.0000789	0.0000493	0.0000987	0.0000789	U	mg/L	1	08/03/16 06:27 PM
Indeno[1,2,3-cd]pyrene	0.0000789	0.0000493	0.0000987	0.0000789	U	mg/L	1	08/03/16 06:27 PM
Phenanthrene	0.0000789	0.0000493	0.0000987	0.0000789	U	mg/L	1	08/03/16 06:27 PM
Pyrene	0.0000789	0.0000493	0.0000987	0.0000789	U	mg/L	1	08/03/16 06:27 PM
IS: Acenaphthene-d10	113	0	50-200	0		%REC	1	08/03/16 06:27 PM
IS: Chrysene-d12	96.8	0	50-200	0		%REC	1	08/03/16 06:27 PM
IS: Naphthalene-d8	98.0	0	50-200	0		%REC	1	08/03/16 06:27 PM
IS: Perylene-d12	98.1	0	50-200	0		%REC	1	08/03/16 06:27 PM
IS: Phenanthrene-d10	114	0	50-200	0		%REC	1	08/03/16 06:27 PM
Surr: 2-Fluorobiphenyl	74.8	0	53-106	0		%REC	1	08/03/16 06:27 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	EB01(20160726)
Project:	Laredo SGR	**Lab ID:**	1607314-07
Project No:	04285081.0000.00044	**Collection Date:**	07/26/16 11:45 AM
Lab Order:	1607314	**Matrix:**	EQUIP BLANK

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Surr: 4-Terphenyl-d14	61.2	0	58-132	0		%REC	1	08/03/16 06:27 PM

Qualifiers:	*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
	C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
	E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
	MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
	RL	Reporting Limit	S	Spike Recovery outside control limits
	N	Parameter not NELAC certified		

DHL ANALYTICAL
2300 Double Creek Dr. ■ Round Rock, TX 78664
Phone (512) 388-8222 ■ FAX (512) 388-8229
Web: www.dhlanalytical.com
E-Mail: login@dhlanalytical.com

№ 72224

CHAIN-OF-CUSTODY

CLIENT: ARCADIS
ADDRESS: 8725 Rosehill Suite 350 Lenexa, KS 66215
PHONE: 913-492-0900 FAX/E-MAIL: Alex.Walter@arcadis.com
DATA REPORTED TO: Alex Walter
ADDITIONAL REPORT COPIES TO:

DATE: 7-26-16 PAGE 1 OF 2
PO #: 04285081.0000.00044 DHL WORK ORDER #: 1608019
PROJECT LOCATION OR NAME: Laredo SGR
CLENT PROJECT #: 04285081.0000.00044 COLLECTOR: Jordan Baem

Authorize 5% surcharge for TRRP Report? ☐ Yes ☐ No

S=SOIL W=WATER A=AIR L=LIQUID SE=SEDIMENT P=PAINT SL=SLUDGE O=OTHER SO=SOLID

Field Sample I.D.	DHL Lab #	Date	Time	Matrix	Container Type	# of Containers	PRESERVATION: HCl	HNO_3	H_2SO_4 ☐ NaOH ☐	ICE	UNPRESERVED	ANALYSES: BTEX ☐ MTBE ☐ [METHOD 8021]	TPH 1005 ☐ TPH 1006 ☐ HOLD 1006 ☐	GRO [METHOD 8015] ☐ DRO [METHOD 8105] ☐	VOC 8260 ☐ VOC 624 ☐ VOC 8260/5035 ☐	SVOC 8270 ☐ PAH 8270 ☐ HOLD PAH ☐ SVOC 625 ☐	8270 PEST ☐ 625 PEST/PCB ☐ 608 PCB ☐	8270 O-P PEST ☐ 8082 PCB ☐ 8270 PCB ☐	8321 HERB ☐ T PHOS, AMMONIA ☐	METALS 6020 ☐ METALS 200.8 ☐ DISS. METALS ☐	RCRA ☐ TX11 ☐ Lead	PH ☐ HEX CHROM ☐ ALKALINITY ☐ COD ☐	CHLORIDE ☐ ANIONS ☐	TCLP-SVOC ☐ VOC ☐ PEST ☐ HERB ☐	TCLP-METALS ☐ RCRA 8 ☐ TX-11 ☐ Pb ☐	RCI ☐ FLASHPOINT ☐ DGAS ☐	TDS ☐ TSS ☐ % MOISTURE ☐ CYANIDE ☐	FIELD NOTES
SGR-DU129(0-2)-A	01	7-26-16	1112	S	Bag	1				X					X					X								
SGR-DU129(2-4)-A	02	7-26-16	1114	S	Bag	1				X					X					X								
SGR-DU129(4-6)-A	03	7-26-16	1116	S	Bag	1				X					X					X								
SGR-DU129(6-8)-A	04	7-26-16	1118	S	Bag	1				X					X					X								
SGR-DU129(0-2)-B	05	7-26-16	1122	S	Bag	1				X					X					X								
SGR-DU129(2-4)-B	06	7-26-16	1124	S	Bag	1				X					X					X								
SGR-DU129(4-6)-B		7-26-16	1126	S	Bag	1				X					X					X								
SGR-DU129(6-8)-B		7-26-16	1126	S	Bag	1				X					X					X								
SGR-DU129(0-2)-C		7-26-16	1132	S	Bag	1				X					X					X								
SGR-DU129(2-4)-C		7-26-16	1134	S	Bag	1				X					X					X								
SGR-DU129(4-6)-C		7-26-16	1136	S	Bag	1				X					X					X								
SGR-DU129(6-8)-C		7-26-16	1138	S	Bag	1				X					X					X								
EB01(20160726)		7-26-16	1145	W	Bly/Glass	2		X		X					X					X								

RELINQUISHED BY: (Signature) Jordan Baem DATE/TIME 7-26-16/1700 RECEIVED BY: (Signature) Fed ex
RELINQUISHED BY: (Signature) Fed ex DATE/TIME 8/2/16 9:45 RECEIVED BY: (Signature)
RELINQUISHED BY: (Signature) DATE/TIME RECEIVED BY: (Signature)

☐ DHL DISPOSAL @ $5.00 each ☐ Return 3

TURN AROUND TIME
RUSH ☐ CALL FIRST
1 DAY ☐ CALL FIRST
2 DAY ☐
NORMAL ☑
OTHER ☐ _____

LABORATORY USE ONLY:
RECEIVING TEMP: 28.5 THERM #: 78
CUSTODY SEALS: ☒ BROKEN ☐ INTACT ☐ NOT USED
CARRIER: ☐ LONE STAR ☒ FEDEX ☐ UPS ☐ OTHER
☐ COURIER DELIVERY
☐ HAND DELIVERED

DHL Analytical, Inc.

Sample Receipt Checklist

Client Name Arcadis | Date Received: 8/2/2016

Work Order Number 1608019 | Received by JB

Checklist completed by: [signature] 8/2/2016 (Signature / Date) | Reviewed by [initials] 8/2/2016 (Initials / Date)

Carrier name FedEx 1day

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shippping container/cooler?	Yes ☐	No ☑	Not Present ☐
Custody seals intact on sample bottles?	Yes ☑	No ☐	Not Present ☐
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☐	No ☑	28.5 °C
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH<2 acceptable upon receipt?	Yes ☐	No ☐	NA ☑ LOT #
	Adjusted?		Checked by
Water - ph>9 (S) or ph>12 (CN) acceptable upon receipt?	Yes ☐	No ☐	NA ☑ LOT #
	Adjusted?		Checked by

Any No response must be detailed in the comments section below.

Client contacted Arcadis Date contacted: 8/2/16 Person contacted Alex Walter

Contacted by: [signature] Regarding: Temperature

Comments: Per Alex proceed with analysis, is aware of temperature. This cooler was suppose to be delivered on 7/27/16 by fed ex but was misdelivered to another business. Cooler was delivered on 8/2/16. The Corrective Action custody seal was broken so the cooler could be opened by the person who it was delivered to. They found DHL number on COC and called, cooler was picked up by fed ex on 8/1/16 and delivered to DHL the next day.

Page 1 of 1

DHL Analytical, Inc.

Date: *23-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU129(0-2)-A
Project:	Laredo SGR	**Lab ID:**	1608019-01
Project No:	04285081.0000.00044	**Collection Date:**	07/26/16 11:12 AM
Lab Order:	1608019	**Matrix:**	SOIL

Analyses	Result		DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID				**SW6020A**					Analyst: **RO**
Lead	22.9		0.0917	0.275	0.138		mg/Kg-dry	5	08/11/16 05:52 PM
IS: Bismuth	102		0	30-120	0		%REC	5	08/11/16 05:52 PM
PAHS: GC/MS				**SW8270D-LL**					Analyst: **KL**
Acenaphthene	0.0744	UJL	0.0496	0.0992	0.0744	CU	mg/Kg-dry	10	08/03/16 09:50 PM
Acenaphthylene	0.0744		0.0496	0.0992	0.0744	CU	mg/Kg-dry	10	08/03/16 09:50 PM
Anthracene	0.0744		0.0496	0.0992	0.0744	CU	mg/Kg-dry	10	08/03/16 09:50 PM
Benzo[a]anthracene	0.143	JL	0.0496	0.0992	0.0744	C	mg/Kg-dry	10	08/03/16 09:50 PM
Benzo[a]pyrene	0.164		0.0496	0.0992	0.0744	C	mg/Kg-dry	10	08/03/16 09:50 PM
Benzo[b]fluoranthene	0.164		0.0496	0.0992	0.0744	C	mg/Kg-dry	10	08/03/16 09:50 PM
Benzo[e]pyrene	0.124		0.0496	0.0992	0.0744	C	mg/Kg-dry	10	08/03/16 09:50 PM
Benzo[g,h,i]perylene	0.150		0.0496	0.0992	0.0744	C	mg/Kg-dry	10	08/03/16 09:50 PM
Benzo[j]fluoranthene	0.0839		0.0496	0.0992	0.0744	JCN	mg/Kg-dry	10	08/03/16 09:50 PM
Benzo[k]fluoranthene	0.0850		0.0496	0.0992	0.0744	JC	mg/Kg-dry	10	08/03/16 09:50 PM
Chrysene	0.175		0.0496	0.0992	0.0744	C	mg/Kg-dry	10	08/03/16 09:50 PM
Dibenz[a,h]anthracene	0.0744	UJL	0.0496	0.0992	0.0744	CU	mg/Kg-dry	10	08/03/16 09:50 PM
Fluoranthene	0.292	JL	0.0496	0.0992	0.0744	C	mg/Kg-dry	10	08/03/16 09:50 PM
Fluorene	0.0744	UJL	0.0496	0.0992	0.0744	CU	mg/Kg-dry	10	08/03/16 09:50 PM
Indeno[1,2,3-cd]pyrene	0.128	JL	0.0496	0.0992	0.0744	C	mg/Kg-dry	10	08/03/16 09:50 PM
Phenanthrene	0.147		0.0496	0.0992	0.0744	C	mg/Kg-dry	10	08/03/16 09:50 PM
Pyrene	0.244		0.0496	0.0992	0.0744	C	mg/Kg-dry	10	08/03/16 09:50 PM
IS: Acenaphthene-d10	114		0	50-200	0		%REC	10	08/03/16 09:50 PM
IS: Chrysene-d12	99.2		0	50-200	0		%REC	10	08/03/16 09:50 PM
IS: Naphthalene-d8	102		0	50-200	0		%REC	10	08/03/16 09:50 PM
IS: Perylene-d12	96.2		0	50-200	0		%REC	10	08/03/16 09:50 PM
IS: Phenanthrene-d10	94.5		0	50-200	0		%REC	10	08/03/16 09:50 PM
Surr: 2-Fluorobiphenyl	86.8		0	46-115	0		%REC	10	08/03/16 09:50 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU129(0-2)-A
Project:	Laredo SGR	**Lab ID:**	1608019-01
Project No:	04285081.0000.00044	**Collection Date:**	07/26/16 11:12 AM
Lab Order:	1608019	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Surr: 4-Terphenyl-d14	89.4	0	58-133	0		%REC	10	08/03/16 09:50 PM

Qualifiers:	*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
	C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
	E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
	MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
	RL	Reporting Limit	S	Spike Recovery outside control limits
	N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *23-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU129(2-4)-A
Project:	Laredo SGR	**Lab ID:**	1608019-02
Project No:	04285081.0000.00044	**Collection Date:**	07/26/16 11:14 AM
Lab Order:	1608019	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	8.59	0.0943	0.283	0.142		mg/Kg-dry	5	08/11/16 05:54 PM
IS: Bismuth	99.2	0	30-120	0		%REC	5	08/11/16 05:54 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Acenaphthene	0.0701 UJL	0.0467	0.0935	0.0701	CU	mg/Kg-dry	10	08/03/16 10:31 PM
Acenaphthylene	0.0701	0.0467	0.0935	0.0701	CU	mg/Kg-dry	10	08/03/16 10:31 PM
Anthracene	0.0701	0.0467	0.0935	0.0701	CU	mg/Kg-dry	10	08/03/16 10:31 PM
Benzo[a]anthracene	0.0701	0.0467	0.0935	0.0701	CU	mg/Kg-dry	10	08/03/16 10:31 PM
Benzo[a]pyrene	0.0701	0.0467	0.0935	0.0701	CU	mg/Kg-dry	10	08/03/16 10:31 PM
Benzo[b]fluoranthene	0.0701	0.0467	0.0935	0.0701	CU	mg/Kg-dry	10	08/03/16 10:31 PM
Benzo[e]pyrene	0.0701	0.0467	0.0935	0.0701	CU	mg/Kg-dry	10	08/03/16 10:31 PM
Benzo[g,h,i]perylene	0.0701	0.0467	0.0935	0.0701	CU	mg/Kg-dry	10	08/03/16 10:31 PM
Benzo[j]fluoranthene	0.0701	0.0467	0.0935	0.0701	CNU	mg/Kg-dry	10	08/03/16 10:31 PM
Benzo[k]fluoranthene	0.0701	0.0467	0.0935	0.0701	CU	mg/Kg-dry	10	08/03/16 10:31 PM
Chrysene	0.0701	0.0467	0.0935	0.0701	CU	mg/Kg-dry	10	08/03/16 10:31 PM
Dibenz[a,h]anthracene	0.0701	0.0467	0.0935	0.0701	CU	mg/Kg-dry	10	08/03/16 10:31 PM
Fluoranthene	0.0701	0.0467	0.0935	0.0701	CU	mg/Kg-dry	10	08/03/16 10:31 PM
Fluorene	0.0701	0.0467	0.0935	0.0701	CU	mg/Kg-dry	10	08/03/16 10:31 PM
Indeno[1,2,3-cd]pyrene	0.0701	0.0467	0.0935	0.0701	CU	mg/Kg-dry	10	08/03/16 10:31 PM
Phenanthrene	0.0701	0.0467	0.0935	0.0701	CU	mg/Kg-dry	10	08/03/16 10:31 PM
Pyrene	0.0701	0.0467	0.0935	0.0701	CU	mg/Kg-dry	10	08/03/16 10:31 PM
IS: Acenaphthene-d10	122	0	50-200	0		%REC	10	08/03/16 10:31 PM
IS: Chrysene-d12	100	0	50-200	0		%REC	10	08/03/16 10:31 PM
IS: Naphthalene-d8	106	0	50-200	0		%REC	10	08/03/16 10:31 PM
IS: Perylene-d12	98.4	0	50-200	0		%REC	10	08/03/16 10:31 PM
IS: Phenanthrene-d10	94.7	0	50-200	0		%REC	10	08/03/16 10:31 PM
Surr: 2-Fluorobiphenyl	83.2	0	46-115	0		%REC	10	08/03/16 10:31 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU129(2-4)-A
Project:	Laredo SGR	**Lab ID:**	1608019-02
Project No:	04285081.0000.00044	**Collection Date:**	07/26/16 11:14 AM
Lab Order:	1608019	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Surr: 4-Terphenyl-d14	84.3	0	58-133	0		%REC	10	08/03/16 10:31 PM

Qualifiers:				
	*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
	C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
	E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
	MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
	RL	Reporting Limit	S	Spike Recovery outside control limits
	N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *23-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU129(4-6)-A
Project:	Laredo SGR	**Lab ID:**	1608019-03
Project No:	04285081.0000.00044	**Collection Date:**	07/26/16 11:16 AM
Lab Order:	1608019	**Matrix:**	SOIL

Analyses	Result		DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID				**SW6020A**					Analyst: **RO**
Lead	11.5		0.0877	0.263	0.132		mg/Kg-dry	5	08/11/16 05:56 PM
IS: Bismuth	99.7		0	30-120	0		%REC	5	08/11/16 05:56 PM
PAHS: GC/MS				**SW8270D-LL**					Analyst: **KL**
Acenaphthene	0.0739	UJL	0.0493	0.0985	0.0739	CU	mg/Kg-dry	10	08/03/16 11:11 PM
Acenaphthylene	0.0739		0.0493	0.0985	0.0739	CU	mg/Kg-dry	10	08/03/16 11:11 PM
Anthracene	0.0739		0.0493	0.0985	0.0739	CU	mg/Kg-dry	10	08/03/16 11:11 PM
Benzo[a]anthracene	0.0515	JL	0.0493	0.0985	0.0739	JC	mg/Kg-dry	10	08/03/16 11:11 PM
Benzo[a]pyrene	0.0739	UJL	0.0493	0.0985	0.0739	CU	mg/Kg-dry	10	08/03/16 11:11 PM
Benzo[b]fluoranthene	0.0496	JL	0.0493	0.0985	0.0739	JC	mg/Kg-dry	10	08/03/16 11:11 PM
Benzo[e]pyrene	0.0739	UJL	0.0493	0.0985	0.0739	CU	mg/Kg-dry	10	08/03/16 11:11 PM
Benzo[g,h,i]perylene	0.0739		0.0493	0.0985	0.0739	CU	mg/Kg-dry	10	08/03/16 11:11 PM
Benzo[j]fluoranthene	0.0739		0.0493	0.0985	0.0739	CNU	mg/Kg-dry	10	08/03/16 11:11 PM
Benzo[k]fluoranthene	0.0739		0.0493	0.0985	0.0739	CU	mg/Kg-dry	10	08/03/16 11:11 PM
Chrysene	0.0575	JL	0.0493	0.0985	0.0739	JC	mg/Kg-dry	10	08/03/16 11:11 PM
Dibenz[a,h]anthracene	0.0739	UJL	0.0493	0.0985	0.0739	CU	mg/Kg-dry	10	08/03/16 11:11 PM
Fluoranthene	0.110	JL	0.0493	0.0985	0.0739	C	mg/Kg-dry	10	08/03/16 11:11 PM
Fluorene	0.0739	UJL	0.0493	0.0985	0.0739	CU	mg/Kg-dry	10	08/03/16 11:11 PM
Indeno[1,2,3-cd]pyrene	0.0739	UJL	0.0493	0.0985	0.0739	CU	mg/Kg-dry	10	08/03/16 11:11 PM
Phenanthrene	0.0691	JL	0.0493	0.0985	0.0739	JC	mg/Kg-dry	10	08/03/16 11:11 PM
Pyrene	0.0886	JL	0.0493	0.0985	0.0739	JC	mg/Kg-dry	10	08/03/16 11:11 PM
IS: Acenaphthene-d10	122		0	50-200	0		%REC	10	08/03/16 11:11 PM
IS: Chrysene-d12	104		0	50-200	0		%REC	10	08/03/16 11:11 PM
IS: Naphthalene-d8	108		0	50-200	0		%REC	10	08/03/16 11:11 PM
IS: Perylene-d12	99.0		0	50-200	0		%REC	10	08/03/16 11:11 PM
IS: Phenanthrene-d10	99.5		0	50-200	0		%REC	10	08/03/16 11:11 PM
Surr: 2-Fluorobiphenyl	79.2		0	46-115	0		%REC	10	08/03/16 11:11 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU129(4-6)-A
Project:	Laredo SGR	**Lab ID:**	1608019-03
Project No:	04285081.0000.00044	**Collection Date:**	07/26/16 11:16 AM
Lab Order:	1608019	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Surr: 4-Terphenyl-d14	82.0	0	58-133	0		%REC	10	08/03/16 11:11 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *23-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU129(6-8)-A
Project:	Laredo SGR	**Lab ID:**	1608019-04
Project No:	04285081.0000.00044	**Collection Date:**	07/26/16 11:18 AM
Lab Order:	1608019	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	8.11	0.0980	0.294	0.147		mg/Kg-dry	5	08/11/16 05:58 PM
IS: Bismuth	102	0	30-120	0		%REC	5	08/11/16 05:58 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Acenaphthene	0.0744 UJL	0.0496	0.0992	0.0744	CU	mg/Kg-dry	10	08/03/16 11:51 PM
Acenaphthylene	0.0744	0.0496	0.0992	0.0744	CU	mg/Kg-dry	10	08/03/16 11:51 PM
Anthracene	0.0744	0.0496	0.0992	0.0744	CU	mg/Kg-dry	10	08/03/16 11:51 PM
Benzo[a]anthracene	0.0744	0.0496	0.0992	0.0744	CU	mg/Kg-dry	10	08/03/16 11:51 PM
Benzo[a]pyrene	0.0744	0.0496	0.0992	0.0744	CU	mg/Kg-dry	10	08/03/16 11:51 PM
Benzo[b]fluoranthene	0.0744	0.0496	0.0992	0.0744	CU	mg/Kg-dry	10	08/03/16 11:51 PM
Benzo[e]pyrene	0.0744	0.0496	0.0992	0.0744	CU	mg/Kg-dry	10	08/03/16 11:51 PM
Benzo[g,h,i]perylene	0.0744	0.0496	0.0992	0.0744	CU	mg/Kg-dry	10	08/03/16 11:51 PM
Benzo[j]fluoranthene	0.0744	0.0496	0.0992	0.0744	CNU	mg/Kg-dry	10	08/03/16 11:51 PM
Benzo[k]fluoranthene	0.0744	0.0496	0.0992	0.0744	CU	mg/Kg-dry	10	08/03/16 11:51 PM
Chrysene	0.0744	0.0496	0.0992	0.0744	CU	mg/Kg-dry	10	08/03/16 11:51 PM
Dibenz[a,h]anthracene	0.0744	0.0496	0.0992	0.0744	CU	mg/Kg-dry	10	08/03/16 11:51 PM
Fluoranthene	0.0744	0.0496	0.0992	0.0744	CU	mg/Kg-dry	10	08/03/16 11:51 PM
Fluorene	0.0744	0.0496	0.0992	0.0744	CU	mg/Kg-dry	10	08/03/16 11:51 PM
Indeno[1,2,3-cd]pyrene	0.0744	0.0496	0.0992	0.0744	CU	mg/Kg-dry	10	08/03/16 11:51 PM
Phenanthrene	0.0744	0.0496	0.0992	0.0744	CU	mg/Kg-dry	10	08/03/16 11:51 PM
Pyrene	0.0744	0.0496	0.0992	0.0744	CU	mg/Kg-dry	10	08/03/16 11:51 PM
IS: Acenaphthene-d10	117	0	50-200	0		%REC	10	08/03/16 11:51 PM
IS: Chrysene-d12	97.2	0	50-200	0		%REC	10	08/03/16 11:51 PM
IS: Naphthalene-d8	103	0	50-200	0		%REC	10	08/03/16 11:51 PM
IS: Perylene-d12	92.3	0	50-200	0		%REC	10	08/03/16 11:51 PM
IS: Phenanthrene-d10	94.2	0	50-200	0		%REC	10	08/03/16 11:51 PM
Surr: 2-Fluorobiphenyl	85.9	0	46-115	0		%REC	10	08/03/16 11:51 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU129(6-8)-A
Project:	Laredo SGR	**Lab ID:**	1608019-04
Project No:	04285081.0000.00044	**Collection Date:**	07/26/16 11:18 AM
Lab Order:	1608019	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Surr: 4-Terphenyl-d14	86.9	0	58-133	0		%REC	10	08/03/16 11:51 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *23-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU129(0-2)-B
Project:	Laredo SGR	**Lab ID:**	1608019-05
Project No:	04285081.0000.00044	**Collection Date:**	07/26/16 11:22 AM
Lab Order:	1608019	**Matrix:**	SOIL

Analyses	Result		DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID				**SW6020A**					Analyst: **RO**
Lead	25.8		0.0935	0.280	0.140		mg/Kg-dry	5	08/11/16 06:00 PM
IS: Bismuth	99.5		0	30-120	0		%REC	5	08/11/16 06:00 PM
PAHS: GC/MS				**SW8270D-LL**					Analyst: **KL**
Acenaphthene	0.0746	UJL	0.0497	0.0994	0.0746	CU	mg/Kg-dry	10	08/04/16 12:31 AM
Acenaphthylene	0.0746		0.0497	0.0994	0.0746	CU	mg/Kg-dry	10	08/04/16 12:31 AM
Anthracene	0.0746		0.0497	0.0994	0.0746	CU	mg/Kg-dry	10	08/04/16 12:31 AM
Benzo[a]anthracene	0.112	JL	0.0497	0.0994	0.0746	C	mg/Kg-dry	10	08/04/16 12:31 AM
Benzo[a]pyrene	0.133		0.0497	0.0994	0.0746	C	mg/Kg-dry	10	08/04/16 12:31 AM
Benzo[b]fluoranthene	0.128		0.0497	0.0994	0.0746	C	mg/Kg-dry	10	08/04/16 12:31 AM
Benzo[e]pyrene	0.0994		0.0497	0.0994	0.0746	C	mg/Kg-dry	10	08/04/16 12:31 AM
Benzo[g,h,i]perylene	0.119		0.0497	0.0994	0.0746	C	mg/Kg-dry	10	08/04/16 12:31 AM
Benzo[j]fluoranthene	0.0677		0.0497	0.0994	0.0746	JCN	mg/Kg-dry	10	08/04/16 12:31 AM
Benzo[k]fluoranthene	0.0693		0.0497	0.0994	0.0746	JC	mg/Kg-dry	10	08/04/16 12:31 AM
Chrysene	0.142		0.0497	0.0994	0.0746	C	mg/Kg-dry	10	08/04/16 12:31 AM
Dibenz[a,h]anthracene	0.0746	UJL	0.0497	0.0994	0.0746	CU	mg/Kg-dry	10	08/04/16 12:31 AM
Fluoranthene	0.213	JL	0.0497	0.0994	0.0746	C	mg/Kg-dry	10	08/04/16 12:31 AM
Fluorene	0.0746	UJL	0.0497	0.0994	0.0746	CU	mg/Kg-dry	10	08/04/16 12:31 AM
Indeno[1,2,3-cd]pyrene	0.102	JL	0.0497	0.0994	0.0746	C	mg/Kg-dry	10	08/04/16 12:31 AM
Phenanthrene	0.102		0.0497	0.0994	0.0746	C	mg/Kg-dry	10	08/04/16 12:31 AM
Pyrene	0.185		0.0497	0.0994	0.0746	C	mg/Kg-dry	10	08/04/16 12:31 AM
IS: Acenaphthene-d10	117		0	50-200	0		%REC	10	08/04/16 12:31 AM
IS: Chrysene-d12	99.6		0	50-200	0		%REC	10	08/04/16 12:31 AM
IS: Naphthalene-d8	105		0	50-200	0		%REC	10	08/04/16 12:31 AM
IS: Perylene-d12	96.0		0	50-200	0		%REC	10	08/04/16 12:31 AM
IS: Phenanthrene-d10	95.4		0	50-200	0		%REC	10	08/04/16 12:31 AM
Surr: 2-Fluorobiphenyl	81.6		0	46-115	0		%REC	10	08/04/16 12:31 AM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU129(0-2)-B
Project:	Laredo SGR	**Lab ID:**	1608019-05
Project No:	04285081.0000.00044	**Collection Date:**	07/26/16 11:22 AM
Lab Order:	1608019	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Surr: 4-Terphenyl-d14	83.6	0	58-133	0		%REC	10	08/04/16 12:31 AM

Qualifiers:	*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
	C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
	E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
	MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
	RL	Reporting Limit	S	Spike Recovery outside control limits
	N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *23-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU129(2-4)-B
Project:	Laredo SGR	**Lab ID:**	1608019-06
Project No:	04285081.0000.00044	**Collection Date:**	07/26/16 11:24 AM
Lab Order:	1608019	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	9.44	0.0935	0.280	0.140		mg/Kg-dry	5	08/11/16 06:02 PM
IS: Bismuth	98.6	0	30-120	0		%REC	5	08/11/16 06:02 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Acenaphthene	0.0740	0.0493	0.0986	0.0740	UJL CU	mg/Kg-dry	10	08/04/16 01:12 AM
Acenaphthylene	0.0740	0.0493	0.0986	0.0740	CU	mg/Kg-dry	10	08/04/16 01:12 AM
Anthracene	0.0740	0.0493	0.0986	0.0740	CU	mg/Kg-dry	10	08/04/16 01:12 AM
Benzo[a]anthracene	0.0740	0.0493	0.0986	0.0740	CU	mg/Kg-dry	10	08/04/16 01:12 AM
Benzo[a]pyrene	0.0740	0.0493	0.0986	0.0740	CU	mg/Kg-dry	10	08/04/16 01:12 AM
Benzo[b]fluoranthene	0.0740	0.0493	0.0986	0.0740	CU	mg/Kg-dry	10	08/04/16 01:12 AM
Benzo[e]pyrene	0.0740	0.0493	0.0986	0.0740	CU	mg/Kg-dry	10	08/04/16 01:12 AM
Benzo[g,h,i]perylene	0.0740	0.0493	0.0986	0.0740	CU	mg/Kg-dry	10	08/04/16 01:12 AM
Benzo[j]fluoranthene	0.0740	0.0493	0.0986	0.0740	CNU	mg/Kg-dry	10	08/04/16 01:12 AM
Benzo[k]fluoranthene	0.0740	0.0493	0.0986	0.0740	CU	mg/Kg-dry	10	08/04/16 01:12 AM
Chrysene	0.0740	0.0493	0.0986	0.0740	CU	mg/Kg-dry	10	08/04/16 01:12 AM
Dibenz[a,h]anthracene	0.0740	0.0493	0.0986	0.0740	CU	mg/Kg-dry	10	08/04/16 01:12 AM
Fluoranthene	0.0740	0.0493	0.0986	0.0740	CU	mg/Kg-dry	10	08/04/16 01:12 AM
Fluorene	0.0740	0.0493	0.0986	0.0740	CU	mg/Kg-dry	10	08/04/16 01:12 AM
Indeno[1,2,3-cd]pyrene	0.0740	0.0493	0.0986	0.0740	CU	mg/Kg-dry	10	08/04/16 01:12 AM
Phenanthrene	0.0740	0.0493	0.0986	0.0740	CU	mg/Kg-dry	10	08/04/16 01:12 AM
Pyrene	0.0740	0.0493	0.0986	0.0740	CU	mg/Kg-dry	10	08/04/16 01:12 AM
IS: Acenaphthene-d10	122	0	50-200	0		%REC	10	08/04/16 01:12 AM
IS: Chrysene-d12	100	0	50-200	0		%REC	10	08/04/16 01:12 AM
IS: Naphthalene-d8	108	0	50-200	0		%REC	10	08/04/16 01:12 AM
IS: Perylene-d12	96.9	0	50-200	0		%REC	10	08/04/16 01:12 AM
IS: Phenanthrene-d10	97.6	0	50-200	0		%REC	10	08/04/16 01:12 AM
Surr: 2-Fluorobiphenyl	78.3	0	46-115	0		%REC	10	08/04/16 01:12 AM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU129(2-4)-B
Project:	Laredo SGR	**Lab ID:**	1608019-06
Project No:	04285081.0000.00044	**Collection Date:**	07/26/16 11:24 AM
Lab Order:	1608019	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Surr: 4-Terphenyl-d14	79.6	0	58-133	0		%REC	10	08/04/16 01:12 AM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

August 17, 2016

Alex Walter
Arcadis
8725 Rosehill #350
Lenexa, Kansas 66215
TEL: (913) 492-0900
FAX (913) 492-0902

Order No.: 1607314

RE: Laredo SGR

Dear Alex Walter:

DHL Analytical, Inc. received 7 sample(s) on 7/27/2016 for the analyses presented in the following report.

There were no problems with the analyses and all data met requirements of DoD QSM Ver 5 and NELAC except where noted in the Case Narrative. All non-NELAC methods will be identified accordingly in the case narrative and all estimated uncertainties of test results are within method or EPA specifications.

If you have any questions regarding these tests results, please feel free to call. This report shall not be reproduced except in full without the written approval of DHL Analytical, Inc. Thank you for using DHL Analytical.

Sincerely,

John DuPont
General Manager

This report was performed under the accreditation of the State of Texas & DoD Laboratory Certification Number: T104704211-16-16 & DoD-ELAP #L15-426

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DHL ANALYTICAL

2300 Double Creek Dr. ■ Round Rock, TX 78664
Phone (512) 388-8222 ■ FAX (512) 388-8229
Web: www.dhlanalytical.com
E-Mail: login@dhlanalytical.com

№ 72224

CHAIN-OF-CUSTODY

CLIENT: ARCADIS
ADDRESS: 8725 Rosehill Suite 350 Lenexa, KS 66215
PHONE: 913-492-0900 FAX/E-MAIL: Alex.Walter@arcadis.com
DATA REPORTED TO: Alex Walter
ADDITIONAL REPORT COPIES TO:

DATE: 7-26-16 PAGE 1 OF 2
PO #: 04285081.0000.00044 DHL WORK ORDER #: 1607314
PROJECT LOCATION OR NAME: Laredo SGR
CLENT PROJECT #: 04285081.0000.00044 COLLECTOR: Jordan Boem

Authorize 5% surcharge for TRRP Report? ☐ Yes ☐ No

S=SOIL W=WATER A=AIR L=LIQUID SE=SEDIMENT P=PAINT SL=SLUDGE O=OTHER SO=SOLID

ANALYSES: BTEX ☐ MTBE ☐ (METHOD 8021) TPH 1005 ☐ TPH 1006 ☐ HOLD 1006 ☐ GRO (METHOD 8015) ☐ DRO (METHOD 8105) ☐ VOC 8260 ☐ VOC 624 ☐ VOC 8260/5035 ☐ SVOC 8270 ☐ PAH 8270 ☐ HOLD PAH ☐ SVOC 625 ☐ 8270 PEST ☐ 625 PEST/PCB ☐ 608 PCB ☐ 8270 O-P PEST ☐ 8082 PCB ☐ 8270 PCB ☐ 8321 HERB ☐ T PHOS, AMMONIA ☐ METALS 6020 ☐ METALS 200.8 ☐ DISS. METALS ☐ RCRA ☐ TX11 ☐ 1 Pack ☐ PH ☐ HEX CHROM ☐ ALKALINITY ☐ COD ☐ CHLORIDE ☐ ANIONS ☐ TCLP-SVOC ☐ VOC ☐ PEST ☐ HERB ☐ TCLP-METALS ☐ RCRA 8 ☐ TX-11 ☐ Pb ☐ RCI ☐ FLASHPOINT ☐ DGAS ☐ TDS ☐ TSS ☐ % MOISTURE ☐ CYANIDE ☐

Field Sample I.D.	DHL Lab #	Date	Time	Matrix	Container Type	# of Containers	HCl	HNO_3	H_2SO_4 ☐ NaOH ☐	ICE	UNPRESERVED	BTEX	TPH 1005	GRO	VOC 8260	SVOC 8270	8270 PEST	8270 O-P PEST	8321 HERB	METALS 6020	RCRA	PH	CHLORIDE	TCLP-SVOC	TCLP-METALS	RCI	TDS	FIELD NOTES
SGR-DU129(0-2)-A		7-26-16	1112	S	Bag	1				X						X					X							Cooler lost by Fed ex
SGR-DU129(2-4)-A		7-26-16	1114	S	Bag	1				X						X					X							
SGR-DU129(4-6)-A		7-26-16	1116	S	Bag	1				X						X					X							
SGR-DU129(6-8)-A		7-26-16	1118	S	Bag	1				X						X					X							
SGR-DU129(0-2)-B		7-26-16	1122	S	Bag	1				X						X					X							
SGR-DU129(2-4)-B		7-26-16	1124	S	Bag	1				X						X					X							
SGR-DU129(4-6)-B	01	7-26-16	1126	S	Bag	1				X						X					X							
SGR-DU129(6-8)-B	02	7-26-16	1126	S	Bag	1				X						X					X							
SGR-DU129(0-2)-C	03	7-26-16	1132	S	Bag	1				X						X					X							
SGR-DU129(2-4)-C	04	7-26-16	1134	S	Bag	1				X						X					X							
SGR-DU129(4-6)-C	05	7-26-16	1136	S	Bag	1				X						X					X							
SGR-DU129(6-8)-C	06	7-26-16	1138	S	Bag	1				X						X					X							
FB01(2016072E)	07	7-26-16	1145	W	Poly/Glass	2		X		X						X					X							

RELINQUISHED BY: (Signature) Jordan Boem DATE/TIME 7-26-16/1700 RECEIVED BY: (Signature) Fedex
RELINQUISHED BY: (Signature) Fedex DATE/TIME 7/27/16 943 RECEIVED BY: (Signature) [signature]
RELINQUISHED BY: (Signature) DATE/TIME RECEIVED BY: (Signature)

☐ DHL DISPOSAL @ $5.00 each ☐ Return

TURN AROUND TIME
RUSH ☐ CALL FIRST
1 DAY ☐ CALL FIRST
2 DAY ☐
NORMAL ☐
OTHER ☐

LABORATORY USE ONLY:
RECEIVING TEMP: 1.1 THERM #: 78
CUSTODY SEALS: ☐ BROKEN ☑ INTACT ☐ NOT USED
CARRIER: ☐ LONE STAR ☑ FEDEX ☐ UPS ☐ OTHER
☐ COURIER DELIVERY
☐ HAND DELIVERED



(913) 492-0900
00000044

SHIP DATE: 26JUL16
ACTWGT: 83.70 LB
CAD: 006994464/SSFE17
DIMS: 20x15x15 IN

BILL THIRD PARTY

ORIGI ID:LRD
JORDE BEEM
ARCADE
8725 R 04285
SUITE 3 ILL
LENEXA, K
UNITED STR 62

TO SAMPL
OH INA
230

CREEK DR

ND ROCK TX 78664

(512) 388-8222
INV:
PO:
REF:
DEPT:

FedEx
Express

E

J162016070501

2 of 2
MPS# 0263 7836 7342 3227
Mstr# 7836 7342 3216 0201

WED - 27 JUL 10:30A
PRIORITY OVERNIGHT

44 BSMA

78664
TX-US AUS

CUSTODY SEAL
DATE 7-26-16
SIGNATURE Jordan Beem

QEC
Quality Environmental Containers
800-255-3950 • 304-255-3900

DHL Analytical, Inc.

Sample Receipt Checklist

Client Name Arcadis | Date Received: 7/27/2016

Work Order Number 1607314 | Received by JB

Checklist completed by: _____ 7/28/2016 (Signature / Date) | Reviewed by _____ 7/28/2016 (Initials / Date)

Carrier name FedEx 1day

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shippping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	1.1 °C
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH<2 acceptable upon receipt?	Yes ☑	No ☐	NA ☐ LOT # 8086
	Adjusted? WS		Checked by _____
Water - ph>9 (S) or ph>12 (CN) acceptable upon receipt?	Yes ☐	No ☐	NA ☑ LOT #
	Adjusted? _____		Checked by _____

Any No response must be detailed in the comments section below.

Client contacted Arcadis Date contacted: 7/27/16 Person contacted Alex Walter

Contacted by: JBarker Regarding: Cooler 1 of 2

Comments: Fed ex lost cooler 1 and the samples SGR-DW129(0.2)-A thru SGR-DW129(2.4)-B were never delivered. Client to aware of the cooler being lost.

Corrective Action _____

DHL Analytical, Inc.
Laboratory Review Checklist: Reportable Data

Project Name: Laredo SGR	**Date:** 8/17/2016
Reviewer Name: Angie O'Donnell	**Laboratory Work Order:** 1607314
Prep Batch Number(s): See Prep Dates Report	**Run Batch:** See Analytical Dates Report

#[1]	A[2]	Description	Yes	No	NA[3]	NR[4]	ER#[5]
		Chain-of-Custody (C-O-C)					
R1	OI	**1)** Did samples meet the laboratory's standard conditions of sample acceptability upon receipt?	**X**				**R1-01**
		2) Were all departures from standard conditions described in an exception report?	**X**				
R2	OI	**Sample and Quality Control (QC) Identification**					
		1) Are all field sample ID numbers cross-referenced to the laboratory ID numbers?	**X**				
		2) Are all laboratory ID numbers cross-referenced to the corresponding QC data?	**X**				
R3	OI	**Test Reports**					
		1) Were all samples prepared and analyzed within holding times?	**X**				
		2) Other than those results < MQL, were all other raw values bracketed by calibration standards?	**X**				
		3) Were calculations checked by a peer or supervisor?	**X**				
		4) Were all analyte identifications checked by a peer or supervisor?	**X**				
		5) Were sample detection limits reported for all analytes not detected?	**X**				
		6) Were all results for soil and sediment samples reported on a dry weight basis?	**X**				
		7) Were % moisture (or solids) reported for all soil and sediment samples?	**X**				
		8) Were bulk soils/solids samples for volatile analysis extracted with methanol per EPA Method 5035?			**X**		
		9) If required for the project, TICs reported?			**X**		
R4	O	**Surrogate Recovery Data**					
		1) Were surrogates added prior to extraction?	**X**				
		2) Were surrogate percent recoveries in all samples within the laboratory QC limits?	**X**				
R5	OI	**Test Reports/Summary Forms for Blank Samples**					
		1) Were appropriate type(s) of blanks analyzed?	**X**				
		2) Were blanks analyzed at the appropriate frequency?	**X**				
		3) Where method blanks taken through the entire analytical process, including preparation and, if applicable, cleanup procedures?	**X**				
		4) Were blank concentrations < MQL?	**X**				
R6	OI	**Laboratory Control Samples (LCS):**					
		1) Were all COCs included in the LCS?	**X**				
		2) Was each LCS taken through the entire analytical procedure, including prep and cleanup steps?	**X**				
		3) Were LCSs analyzed at the required frequency?	**X**				
		4) Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits?	**X**				
		5) Does the detectability data document the laboratory's capability to detect the COCs at the MDL used to calculate the SDLs?	**X**				
		6) Was the LCSD RPD within QC limits (if applicable)?	**X**				
R7	OI	**Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Data**					
		1) Were the project/method specified analytes included in the MS and MSD?	**X**				
		2) Were MS/MSD analyzed at the appropriate frequency?	**X**				**R7-02**
		3) Were MS (and MSD, if applicable) %Rs within the laboratory QC limits?	**X**				
		4) Were MS/MSD RPDs within laboratory QC limits?	**X**				
R8	OI	**Analytical Duplicate Data**					
		1) Were appropriate analytical duplicates analyzed for each matrix?			**X**		
		2) Were analytical duplicates analyzed at the appropriate frequency?			**X**		
		3) Were RPDs or relative standard deviations within the laboratory QC limits?			**X**		
R9	OI	**Method Quantitation Limits (MQLs):**					
		1) Are the MQLs for each method analyte included in the laboratory data package?	**X**				
		2) Do the MQLs correspond to the concentration of the lowest non-zero calibration standard?	**X**				
		3) Are unadjusted MQLs and DCSs included in the laboratory data package?	**X**				
R10	OI	**Other Problems/Anomalies**					
		1) Are all known problems/anomalies/special conditions noted in this LRC and ER?	**X**				**R10-01**
		2) Was applicable and available technology used to lower the SDL to minimize the matrix interference affects on the sample results?	**X**				
		3) Is the laboratory NELAC-accredited under the Texas Laboratory Accreditation Program for the analytes, matrices and methods associated with this laboratory data package?	**X**				

1 Items identified by the letter "R" should be included in the laboratory data package submitted to the TCEQ in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.
2 O = organic analyses; I = inorganic analyses (and general chemistry, when applicable).
3 NA = Not applicable.
4 NR = Not Reviewed.
5 ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

DHL Analytical, Inc.
Laboratory Review Checklist (continued): Supporting Data

Project Name: Laredo SGR | **Date:** 8/17/2016

Reviewer Name: Angie O'Donnell | **Laboratory Work Order:** 1607314

#[1]	A[2]	Description	Yes	No	NA[3]	NR[4]	ER#[5]
S1	OI	**Initial Calibration (ICAL)**					
		1) Were response factors and/or relative response factors for each analyte within QC limits?	**X**				
		2) Were percent RSDs or correlation coefficient criteria met?	**X**				
		3) Was the number of standards recommended in the method used for all analytes?	**X**				
		4) Were all points generated between the lowest and highest standard used to calculate the curve?	**X**				
		5) Are ICAL data available for all instruments used?	**X**				
		6) Has the initial calibration curve been verified using an appropriate second source standard?	**X**				
S2	OI	**Initial and Continuing calibration Verification (ICCV and CCV) and Continuing Calibration blank (CCB):**					
		1) Was the CCV analyzed at the method-required frequency?	**X**				
		2) Were percent differences for each analyte within the method-required QC limits?	**X**				
		3) Was the ICAL curve verified for each analyte?	**X**				
		4) Was the absolute value of the analyte concentration in the inorganic CCB < MDL?	**X**				
S3	O	**Mass Spectral Tuning:**					
		1) Was the appropriate compound for the method used for tuning?	**X**				
		2) Were ion abundance data within the method-required QC limits?	**X**				
S4	O	**Internal Standards (IS):**					
		1) Were IS area counts and retention times within the method-required QC limits?	**X**				
S5	OI	**Raw Data (NELAC Section 5.5.10)**					
		1) Were the raw data (for example, chromatograms, spectral data) reviewed by an analyst?	**X**				
		2) Were data associated with manual integrations flagged on the raw data?	**X**				
S6	O	**Dual Column Confirmation**					
		1) Did dual column confirmation results meet the method-required QC?			**X**		
S7	O	**Tentatively Identified Compounds (TICs):**					
		1) If TICs were requested, were the mass spectra and TIC data subject to appropriate checks?			**X**		
S8	I	**Interference Check Sample (ICS) Results:**					
		1) Were percent recoveries within method QC limits?	**X**				
S9	I	**Serial Dilutions, Post Digestion Spikes, and Method of Standard Additions**					
		1) Were percent differences, recoveries, and the linearity within the QC limits specified in the method?	**X**				
S10	OI	**Method Detection Limit (MDL) Studies**					
		1) Was a MDL study performed for each reported analyte?	**X**				
		2) Is the MDL either adjusted or supported by the analysis of DCSs?	**X**				
S11	OI	**Proficiency Test Reports:**					
		1) Was the lab's performance acceptable on the applicable proficiency tests or evaluation studies?	**X**				
S12	OI	**Standards Documentation**					
		1) Are all standards used in the analyses NIST-traceable or obtained from other appropriate sources?	**X**				
S13	OI	**Compound/Analyte Identification Procedures**					
		1) Are the procedures for compound/analyte identification documented?	**X**				
S14	OI	**Demonstration of Analyst Competency (DOC)**					
		1) Was DOC conducted consistent with NELAC Chapter 5 – Appendix C?	**X**				
		2) Is documentation of the analyst's competency up-to-date and on file?	**X**				
S15	OI	**Verification/Validation Documentation for Methods** (NELAC Chapter 5)					
		1) Are all the methods used to generate the data documented, verified, and validated, where applicable?	**X**				
S16	OI	**Laboratory Standard Operating Procedures (SOPs):**					
		1) Are laboratory SOPs current and on file for each method performed?	**X**				

1 Items identified by the letter "R" should be included in the laboratory data package submitted to the TCEQ in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.
2 O = organic analyses; I = inorganic analyses (and general chemistry, when applicable).
3 NA = Not applicable.
4 NR = Not Reviewed.
5 ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

Laboratory Data Package Signature Page – RG-366/TRRP-13

This data package consists of:

This signature page, the laboratory review checklist, and the following reportable data:

R1 Field chain-of-custody documentation;
R2 Sample identification cross-reference;
R3 Test reports (analytical data sheets) for each environmental sample that includes:
  a) Items consistent with NELAC Chapter 5,
  b) dilution factors,
  c) preparation methods,
  d) cleanup methods, and
  e) if required for the project, tentatively identified compounds (TICs).
R4 Surrogate recovery data including:
  a) Calculated recovery (%R), and
  b) The laboratory's surrogate QC limits.
R5 Test reports/summary forms for blank samples;
R6 Test reports/summary forms for laboratory control samples (LCSs) including:
  a) LCS spiking amounts,
  b) Calculated %R for each analyte, and
  c) The laboratory's LCS QC limits.
R7 Test reports for project matrix spike/matrix spike duplicates (MS/MSDs) including:
  a) Samples associated with the MS/MSD clearly identified,
  b) MS/MSD spiking amounts,
  c) Concentration of each MS/MSD analyte measured in the parent and spiked samples,
  d) Calculated %Rs and relative percent differences (RPDs), and
  e) The laboratory's MS/MSD QC limits
R8 Laboratory analytical duplicate (if applicable) recovery and precision:
  a) The amount of analyte measured in the duplicate,
  b) The calculated RPD, and
  c) The laboratory's QC limits for analytical duplicates.
R9 List of method quantitation limits (MQLs) and detectability check sample results for each analyte for each method and matrix;
R10 Other problems or anomalies.

The Exception Report for every "No" or "Not Reviewed (NR)" item in Laboratory Review checklist and for each analyte, matrix, and method for which the laboratory does not hold NELAC accreditation under the Texas Laboratory Accreditation Program.

Release Statement: I am responsible for the release of this laboratory data package. This laboratory is NELAC accredited under the Texas Laboratory Accreditation Program for all the methods, analytes, and matrices reported in this data package except as noted in the Exception Reports. The data have been reviewed and are technically compliant with the requirements of the methods used, except where noted by the laboratory in the Exception Reports. By my signature below, I affirm to the best of my knowledge that all problems/anomalies observed by the laboratory have been identified in the Laboratory Review Checklist, and no information or data affecting the quality of the data has been knowingly withheld.

This laboratory was last inspected by TCEQ on June 1-5, 2015. Any findings affecting the data in this laboratory data package are noted in the Exception Reports herein. The official signing the cover page of the report in which these data are used is responsible for releasing this data package and is by signature affirming the above release statement is true.

John DuPont – General Manager

Scott Schroeder – Technical Director



Signature

08/17/16

Date

DHL Analytical, Inc. **Date:** *17-Aug-16*

CLIENT: Arcadis
Project: Laredo SGR
Lab Order: 1607314

CASE NARRATIVE

This case narrative describes abnormalities and deviations that may affect the results and summarizes all known issues that need to be highlighted for the data user to assess the results. This case narrative and the report contents are compliant with DoD QSM Ver. 5.0 and NELAC.

The "U" flag indicates the results for that sample are nondetect.

Samples were analyzed using the methods outlined in the following references:

Method SW8270D-LL - PAH Analysis (The compound Benzo[j]fluoranthene is not NELAC or DOD Certified)
Method SW6020A- Metals Analysis

Exception Report R1-01

Samples were received on and log-in performed on 7/27/2016. A total of 7 samples were received and analyzed. Fedex lost one icechest containing six samples. The icechest was found and delivered on August 2, 2016 to be reported in DHL WO# 1608019. The client was notified and instructed the laboratory to proceed with analysis requested on the samples received. These seven samples arrived in good condition and were properly packaged.

Exception Report R7-02

For PAH Analysis, for Batch 76564, an MS/MSD is not required for Equipment Blank matrices. An LCS was performed as Batch QC.

Exception Report R10-01

For PAH Analysis, the soil samples were diluted due to observed color of extract; dilution meets project specifications.

For Metals Analysis, for Batch 76687, the Serial Dilution was mis-prepared which yielded unusable data and will not be reported. The associated samples were Equipment Blanks and were nondetect for the target analyte, Lead. The associated Post Digestion Spike was within method control limits and will be reported as Batch QC. Client was informed and no further corrective action was taken.

For all of the samples in this project, DHL Analytical performed an Incremental Sampling Method (ISM) according to an internal SOP, as approved by the client and included in the project QAPP. All of the soil samples in this workorder consist of the following sample types: subsurface soil samples processed to pass a #10 sieve (2mm).

CLIENT:	Arcadis
Project:	Laredo SGR
Lab Order:	1607314

CASE NARRATIVE

A summary of project communication follows:

The Subcontract Agreement No. D16-003 for Arcadis Project No. 04285081.0000.00043 was sent to DHL Analytical from client and signed on 1/6/2016, the contract for work signed and approved by both parties on 1/12/2016. A Modification No. 01-D16-003 was signed by both parties on 4/21/2016.

The bottle kit was requested from Alex Walter of Arcadis sent via email to John DuPont on 7/5/2016. The following DHL Bottle Orders:
#7161 sent on 7/14/2016 via Lonestar Overnight Ground to arrive by 7/15/2016.
#7162 sent on 7/18/2016 via Lonestar Overnight Ground to arrive by 7/19/2016.
#7163 sent on 7/20/2016 via Lonestar Overnight Ground to arrive by 7/21/2016.
#7164 sent on 7/22/2016 via Lonestar Overnight Ground to arrive by 7/25/2016.
#7196 sent on 7/22/2016 via Lonestar Overnight Ground to arrive by 7/25/2016.

This sample delivery group arrives at DHL Analytical on 7/27/2016 and the Sample Summary was sent on 7/28/2016. Associated shipping documents are kept in the project folder and/or client folder as part of the Administrative records filed in the QA office.

DHL project manager/qa staff discussed with client the following issues:
email communications 8/5/2016 - from J. DuPont to the Arcadis Kansas Laredo email group regarding misdirected cooler by FedEx, surrogate(s) below control limits for some samples and QC samples and compounds outside of the control limits for ICV(s). The client accepted the corrective action for the quality variances on 8/8/2016.
email communications 8/10/2016 - from J. DuPont to the Arcadis Kansas Laredo email group regarding request mis-prepared Serial Dilution for Batch 76687 and surrogate(s) below control limits for some samples and QC samples. The client accepted the corrective action for the quality variances on 8/10/2016.
email communications 8/12/2016 - from J. DuPont to the Arcadis Kansas Laredo email group regarding PAH and Lead analysis outside of the method control limits for the MS/MSD(s). The client accepted the corrective action for the quality variances on 8/12/2016.

DHL Analytical, Inc.

Date: *17-Aug-16*

CLIENT: Arcadis
Project: Laredo SGR
Lab Order: 1607314

Work Order Sample Summary

Lab Smp ID	Client Sample ID	Tag Number	Date Collected	Date Recved
1607314-01	SGR-DU129(4-6)-B		07/26/16 11:26 AM	7/27/2016
1607314-02	SGR-DU129(6-8)-B		07/26/16 11:26 AM	7/27/2016
1607314-03	SGR-DU129(0-2)-C		07/26/16 11:32 AM	7/27/2016
1607314-04	SGR-DU129(2-4)-C		07/26/16 11:34 AM	7/27/2016
1607314-05	SGR-DU129(4-6)-C		07/26/16 11:36 AM	7/27/2016
1607314-06	SGR-DU129(6-8)-C		07/26/16 11:38 AM	7/27/2016
1607314-07	EB01(20160726)		07/26/16 11:45 AM	7/27/2016

Lab Order: 1607314
Client: Arcadis
Project: Laredo SGR

PREP DATES REPORT

Sample ID	Client Sample ID	Collection Date	Matrix	Test Number	Test Name	Prep Date	Batch ID
1607314-01A	SGR-DU129(4-6)-B	07/26/16 11:26 AM	Soil	SW3550C	Soil Prep Sonication: PAH	08/01/16 09:55 AM	76583
	SGR-DU129(4-6)-B	07/26/16 11:26 AM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/05/16 10:59 AM	76690
1607314-02A	SGR-DU129(6-8)-B	07/26/16 11:26 AM	Soil	SW3550C	Soil Prep Sonication: PAH	08/01/16 09:55 AM	76583
	SGR-DU129(6-8)-B	07/26/16 11:26 AM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/05/16 10:59 AM	76690
1607314-03A	SGR-DU129(0-2)-C	07/26/16 11:32 AM	Soil	SW3550C	Soil Prep Sonication: PAH	08/01/16 09:55 AM	76583
	SGR-DU129(0-2)-C	07/26/16 11:32 AM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/05/16 10:59 AM	76690
1607314-04A	SGR-DU129(2-4)-C	07/26/16 11:34 AM	Soil	SW3550C	Soil Prep Sonication: PAH	08/01/16 09:55 AM	76583
	SGR-DU129(2-4)-C	07/26/16 11:34 AM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/05/16 10:59 AM	76690
1607314-05A	SGR-DU129(4-6)-C	07/26/16 11:36 AM	Soil	SW3550C	Soil Prep Sonication: PAH	08/01/16 09:55 AM	76583
	SGR-DU129(4-6)-C	07/26/16 11:36 AM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/05/16 10:59 AM	76690
1607314-06A	SGR-DU129(6-8)-C	07/26/16 11:38 AM	Soil	SW3550C	Soil Prep Sonication: PAH	08/01/16 09:55 AM	76583
	SGR-DU129(6-8)-C	07/26/16 11:38 AM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/05/16 10:59 AM	76690
1607314-07A	EB01(20160726)	07/26/16 11:45 AM	Equip Blank	SW3005A	Aq Prep Metals : ICP-MS	08/05/16 10:30 AM	76687
1607314-07B	EB01(20160726)	07/26/16 11:45 AM	Equip Blank	SW3510C	Aq Prep Sep Funnel: PAH	07/29/16 10:26 AM	76564

Lab Order: 1607314
Client: Arcadis
Project: Laredo SGR

TCLP/SPLP PREP DATES REPORT

Sample ID	Client Sample ID	Collection Date	Matrix	Test Number	Test Name	Prep Date	Batch ID
1607314-01A	SGR-DU129(4-6)-B	7/26/2016 11:26:00 AM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/28/2016 12:00:00 PM	76539
1607314-02A	SGR-DU129(6-8)-B	7/26/2016 11:26:00 AM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/28/2016 12:00:00 PM	76539
1607314-03A	SGR-DU129(0-2)-C	7/26/2016 11:32:00 AM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/28/2016 12:00:00 PM	76539
1607314-04A	SGR-DU129(2-4)-C	7/26/2016 11:34:00 AM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/28/2016 12:00:00 PM	76539
1607314-05A	SGR-DU129(4-6)-C	7/26/2016 11:36:00 AM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/28/2016 12:00:00 PM	76539
1607314-06A	SGR-DU129(6-8)-C	7/26/2016 11:38:00 AM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/28/2016 12:00:00 PM	76539

Lab Order: 1607314
Client: Arcadis
Project: Laredo SGR

ANALYTICAL DATES REPORT

Sample ID	Client Sample ID	Matrix	Test Number	Test Name	Batch ID	Dilution	Analysis Date	Run ID
1607314-01A	SGR-DU129(4-6)-B	Soil	SW8270D-LL	PAHs: GC/MS	76583	10	08/08/16 07:38 PM	GCMS6_160808A
	SGR-DU129(4-6)-B	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76690	5	08/10/16 05:43 PM	ICP-MS3_160810B
1607314-02A	SGR-DU129(6-8)-B	Soil	SW8270D-LL	PAHs: GC/MS	76583	10	08/08/16 08:18 PM	GCMS6_160808A
	SGR-DU129(6-8)-B	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76690	5	08/10/16 05:49 PM	ICP-MS3_160810B
1607314-03A	SGR-DU129(0-2)-C	Soil	SW8270D-LL	PAHs: GC/MS	76583	10	08/08/16 08:58 PM	GCMS6_160808A
	SGR-DU129(0-2)-C	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76690	5	08/10/16 04:26 PM	ICP-MS3_160810B
1607314-04A	SGR-DU129(2-4)-C	Soil	SW8270D-LL	PAHs: GC/MS	76583	10	08/09/16 12:21 AM	GCMS6_160808A
	SGR-DU129(2-4)-C	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76690	5	08/10/16 06:36 PM	ICP-MS3_160810B
1607314-05A	SGR-DU129(4-6)-C	Soil	SW8270D-LL	PAHs: GC/MS	76583	10	08/09/16 01:02 AM	GCMS6_160808A
	SGR-DU129(4-6)-C	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76690	5	08/10/16 06:42 PM	ICP-MS3_160810B
1607314-06A	SGR-DU129(6-8)-C	Soil	SW8270D-LL	PAHs: GC/MS	76583	10	08/09/16 01:43 AM	GCMS6_160808A
	SGR-DU129(6-8)-C	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76690	5	08/10/16 06:48 PM	ICP-MS3_160810B
1607314-07A	EB01(20160726)	Equip Blank	SW6020A	Trace Metals: ICP-MS - Water	76687	1	08/10/16 02:10 AM	ICP-MS3_160809B
1607314-07B	EB01(20160726)	Equip Blank	SW8270D-LL	PAHs: GC/MS	76564	1	08/03/16 06:27 PM	GCMS8_160803B

DHL Analytical, Inc.

Date: *17-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU129(4-6)-B
Project:	Laredo SGR	**Lab ID:**	1607314-01
Project No:	04285081.0000.00044	**Collection Date:**	07/26/16 11:26 AM
Lab Order:	1607314	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **CVD**
Lead	6.55	0.0990	0.297	0.149		mg/Kg-dry	5	08/10/16 05:43 PM
IS: Bismuth	80.6	0	30-120	0		%REC	5	08/10/16 05:43 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/08/16 07:38 PM
Acenaphthylene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/08/16 07:38 PM
Anthracene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/08/16 07:38 PM
Benzo[a]anthracene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/08/16 07:38 PM
Benzo[a]pyrene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/08/16 07:38 PM
Benzo[b]fluoranthene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/08/16 07:38 PM
Benzo[e]pyrene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/08/16 07:38 PM
Benzo[g,h,i]perylene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/08/16 07:38 PM
Benzo[j]fluoranthene	0.0744	0.0496	0.0992	0.0744	NU	mg/Kg-dry	10	08/08/16 07:38 PM
Benzo[k]fluoranthene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/08/16 07:38 PM
Chrysene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/08/16 07:38 PM
Dibenz[a,h]anthracene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/08/16 07:38 PM
Fluoranthene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/08/16 07:38 PM
Fluorene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/08/16 07:38 PM
Indeno[1,2,3-cd]pyrene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/08/16 07:38 PM
Phenanthrene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/08/16 07:38 PM
Pyrene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/08/16 07:38 PM
IS: Acenaphthene-d10	136	0	50-200	0		%REC	10	08/08/16 07:38 PM
IS: Chrysene-d12	114	0	50-200	0		%REC	10	08/08/16 07:38 PM
IS: Naphthalene-d8	106	0	50-200	0		%REC	10	08/08/16 07:38 PM
IS: Perylene-d12	116	0	50-200	0		%REC	10	08/08/16 07:38 PM
IS: Phenanthrene-d10	97.6	0	50-200	0		%REC	10	08/08/16 07:38 PM
Surr: 2-Fluorobiphenyl	76.1	0	46-115	0		%REC	10	08/08/16 07:38 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU129(4-6)-B
Project:	Laredo SGR	**Lab ID:**	1607314-01
Project No:	04285081.0000.00044	**Collection Date:**	07/26/16 11:26 AM
Lab Order:	1607314	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	85.4	0	58-133	0		%REC	10	08/08/16 07:38 PM

Qualifiers:	*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
	C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
	E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
	MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
	RL	Reporting Limit	S	Spike Recovery outside control limits
	N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *17-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU129(6-8)-B
Project:	Laredo SGR	**Lab ID:**	1607314-02
Project No:	04285081.0000.00044	**Collection Date:**	07/26/16 11:26 AM
Lab Order:	1607314	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **CVD**
Lead	6.45	0.0885	0.265	0.133		mg/Kg-dry	5	08/10/16 05:49 PM
IS: Bismuth	83.4	0	30-120	0		%REC	5	08/10/16 05:49 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0729	0.0486	0.0972	0.0729	U	mg/Kg-dry	10	08/08/16 08:18 PM
Acenaphthylene	0.0729	0.0486	0.0972	0.0729	U	mg/Kg-dry	10	08/08/16 08:18 PM
Anthracene	0.0729	0.0486	0.0972	0.0729	U	mg/Kg-dry	10	08/08/16 08:18 PM
Benzo[a]anthracene	0.0729	0.0486	0.0972	0.0729	U	mg/Kg-dry	10	08/08/16 08:18 PM
Benzo[a]pyrene	0.0729	0.0486	0.0972	0.0729	U	mg/Kg-dry	10	08/08/16 08:18 PM
Benzo[b]fluoranthene	0.0729	0.0486	0.0972	0.0729	U	mg/Kg-dry	10	08/08/16 08:18 PM
Benzo[e]pyrene	0.0729	0.0486	0.0972	0.0729	U	mg/Kg-dry	10	08/08/16 08:18 PM
Benzo[g,h,i]perylene	0.0729	0.0486	0.0972	0.0729	U	mg/Kg-dry	10	08/08/16 08:18 PM
Benzo[j]fluoranthene	0.0729	0.0486	0.0972	0.0729	NU	mg/Kg-dry	10	08/08/16 08:18 PM
Benzo[k]fluoranthene	0.0729	0.0486	0.0972	0.0729	U	mg/Kg-dry	10	08/08/16 08:18 PM
Chrysene	0.0729	0.0486	0.0972	0.0729	U	mg/Kg-dry	10	08/08/16 08:18 PM
Dibenz[a,h]anthracene	0.0729	0.0486	0.0972	0.0729	U	mg/Kg-dry	10	08/08/16 08:18 PM
Fluoranthene	0.0729	0.0486	0.0972	0.0729	U	mg/Kg-dry	10	08/08/16 08:18 PM
Fluorene	0.0729	0.0486	0.0972	0.0729	U	mg/Kg-dry	10	08/08/16 08:18 PM
Indeno[1,2,3-cd]pyrene	0.0729	0.0486	0.0972	0.0729	U	mg/Kg-dry	10	08/08/16 08:18 PM
Phenanthrene	0.0729	0.0486	0.0972	0.0729	U	mg/Kg-dry	10	08/08/16 08:18 PM
Pyrene	0.0729	0.0486	0.0972	0.0729	U	mg/Kg-dry	10	08/08/16 08:18 PM
IS: Acenaphthene-d10	138	0	50-200	0		%REC	10	08/08/16 08:18 PM
IS: Chrysene-d12	116	0	50-200	0		%REC	10	08/08/16 08:18 PM
IS: Naphthalene-d8	110	0	50-200	0		%REC	10	08/08/16 08:18 PM
IS: Perylene-d12	118	0	50-200	0		%REC	10	08/08/16 08:18 PM
IS: Phenanthrene-d10	98.9	0	50-200	0		%REC	10	08/08/16 08:18 PM
Surr: 2-Fluorobiphenyl	75.1	0	46-115	0		%REC	10	08/08/16 08:18 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU129(6-8)-B
Project:	Laredo SGR	**Lab ID:**	1607314-02
Project No:	04285081.0000.00044	**Collection Date:**	07/26/16 11:26 AM
Lab Order:	1607314	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	84.8	0	58-133	0		%REC	10	08/08/16 08:18 PM

Qualifiers:				
	*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
	C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
	E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
	MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
	RL	Reporting Limit	S	Spike Recovery outside control limits
	N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *17-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU129(0-2)-C
Project:	Laredo SGR	**Lab ID:**	1607314-03
Project No:	04285081.0000.00044	**Collection Date:**	07/26/16 11:32 AM
Lab Order:	1607314	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **CVD**
Lead	18.9	0.0855	0.256	0.128		mg/Kg-dry	5	08/10/16 04:26 PM
IS: Bismuth	88.6	0	30-120	0		%REC	5	08/10/16 04:26 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0746	0.0497	0.0994	0.0746	U	mg/Kg-dry	10	08/08/16 08:58 PM
Acenaphthylene	0.0746	0.0497	0.0994	0.0746	U	mg/Kg-dry	10	08/08/16 08:58 PM
Anthracene	0.0746	0.0497	0.0994	0.0746	U	mg/Kg-dry	10	08/08/16 08:58 PM
Benzo[a]anthracene	0.0746	0.0497	0.0994	0.0746	U	mg/Kg-dry	10	08/08/16 08:58 PM
Benzo[a]pyrene	0.0530	0.0497	0.0994	0.0746	J	mg/Kg-dry	10	08/08/16 08:58 PM
Benzo[b]fluoranthene	0.0507	0.0497	0.0994	0.0746	J	mg/Kg-dry	10	08/08/16 08:58 PM
Benzo[e]pyrene	0.0746	0.0497	0.0994	0.0746	U	mg/Kg-dry	10	08/08/16 08:58 PM
Benzo[g,h,i]perylene	0.0746	0.0497	0.0994	0.0746	U	mg/Kg-dry	10	08/08/16 08:58 PM
Benzo[j]fluoranthene	0.0746	0.0497	0.0994	0.0746	NU	mg/Kg-dry	10	08/08/16 08:58 PM
Benzo[k]fluoranthene	0.0746	0.0497	0.0994	0.0746	U	mg/Kg-dry	10	08/08/16 08:58 PM
Chrysene	0.0746	0.0497	0.0994	0.0746	U	mg/Kg-dry	10	08/08/16 08:58 PM
Dibenz[a,h]anthracene	0.0746	0.0497	0.0994	0.0746	U	mg/Kg-dry	10	08/08/16 08:58 PM
Fluoranthene	0.0617	0.0497	0.0994	0.0746	J	mg/Kg-dry	10	08/08/16 08:58 PM
Fluorene	0.0746	0.0497	0.0994	0.0746	U	mg/Kg-dry	10	08/08/16 08:58 PM
Indeno[1,2,3-cd]pyrene	0.0746	0.0497	0.0994	0.0746	U	mg/Kg-dry	10	08/08/16 08:58 PM
Phenanthrene	0.0746	0.0497	0.0994	0.0746	U	mg/Kg-dry	10	08/08/16 08:58 PM
Pyrene	0.0584	0.0497	0.0994	0.0746	J	mg/Kg-dry	10	08/08/16 08:58 PM
IS: Acenaphthene-d10	133	0	50-200	0		%REC	10	08/08/16 08:58 PM
IS: Chrysene-d12	115	0	50-200	0		%REC	10	08/08/16 08:58 PM
IS: Naphthalene-d8	108	0	50-200	0		%REC	10	08/08/16 08:58 PM
IS: Perylene-d12	117	0	50-200	0		%REC	10	08/08/16 08:58 PM
IS: Phenanthrene-d10	99.8	0	50-200	0		%REC	10	08/08/16 08:58 PM
Surr: 2-Fluorobiphenyl	74.9	0	46-115	0		%REC	10	08/08/16 08:58 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU129(0-2)-C
Project:	Laredo SGR	**Lab ID:**	1607314-03
Project No:	04285081.0000.00044	**Collection Date:**	07/26/16 11:32 AM
Lab Order:	1607314	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	82.6	0	58-133	0		%REC	10	08/08/16 08:58 PM

Qualifiers:				
	*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
	C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
	E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
	MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
	RL	Reporting Limit	S	Spike Recovery outside control limits
	N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *17-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU129(2-4)-C
Project:	Laredo SGR	**Lab ID:**	1607314-04
Project No:	04285081.0000.00044	**Collection Date:**	07/26/16 11:34 AM
Lab Order:	1607314	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **CVD**
Lead	8.09	0.0952	0.286	0.143		mg/Kg-dry	5	08/10/16 06:36 PM
IS: Bismuth	80.4	0	30-120	0		%REC	5	08/10/16 06:36 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/09/16 12:21 AM
Acenaphthylene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/09/16 12:21 AM
Anthracene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/09/16 12:21 AM
Benzo[a]anthracene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/09/16 12:21 AM
Benzo[a]pyrene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/09/16 12:21 AM
Benzo[b]fluoranthene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/09/16 12:21 AM
Benzo[e]pyrene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/09/16 12:21 AM
Benzo[g,h,i]perylene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/09/16 12:21 AM
Benzo[j]fluoranthene	0.0744	0.0496	0.0992	0.0744	NU	mg/Kg-dry	10	08/09/16 12:21 AM
Benzo[k]fluoranthene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/09/16 12:21 AM
Chrysene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/09/16 12:21 AM
Dibenz[a,h]anthracene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/09/16 12:21 AM
Fluoranthene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/09/16 12:21 AM
Fluorene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/09/16 12:21 AM
Indeno[1,2,3-cd]pyrene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/09/16 12:21 AM
Phenanthrene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/09/16 12:21 AM
Pyrene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/09/16 12:21 AM
IS: Acenaphthene-d10	139	0	50-200	0		%REC	10	08/09/16 12:21 AM
IS: Chrysene-d12	116	0	50-200	0		%REC	10	08/09/16 12:21 AM
IS: Naphthalene-d8	109	0	50-200	0		%REC	10	08/09/16 12:21 AM
IS: Perylene-d12	119	0	50-200	0		%REC	10	08/09/16 12:21 AM
IS: Phenanthrene-d10	100	0	50-200	0		%REC	10	08/09/16 12:21 AM
Surr: 2-Fluorobiphenyl	72.2	0	46-115	0		%REC	10	08/09/16 12:21 AM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU129(2-4)-C
Project:	Laredo SGR	**Lab ID:**	1607314-04
Project No:	04285081.0000.00044	**Collection Date:**	07/26/16 11:34 AM
Lab Order:	1607314	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	81.0	0	58-133	0		%REC	10	08/09/16 12:21 AM

Qualifiers:	*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
	C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
	E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
	MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
	RL	Reporting Limit	S	Spike Recovery outside control limits
	N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *17-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU129(4-6)-C
Project:	Laredo SGR	**Lab ID:**	1607314-05
Project No:	04285081.0000.00044	**Collection Date:**	07/26/16 11:36 AM
Lab Order:	1607314	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **CVD**
Lead	15.1	0.100	0.300	0.150		mg/Kg-dry	5	08/10/16 06:42 PM
IS: Bismuth	80.6	0	30-120	0		%REC	5	08/10/16 06:42 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0743	0.0496	0.0991	0.0743	U	mg/Kg-dry	10	08/09/16 01:02 AM
Acenaphthylene	0.0743	0.0496	0.0991	0.0743	U	mg/Kg-dry	10	08/09/16 01:02 AM
Anthracene	0.0743	0.0496	0.0991	0.0743	U	mg/Kg-dry	10	08/09/16 01:02 AM
Benzo[a]anthracene	0.0743	0.0496	0.0991	0.0743	U	mg/Kg-dry	10	08/09/16 01:02 AM
Benzo[a]pyrene	0.0743	0.0496	0.0991	0.0743	U	mg/Kg-dry	10	08/09/16 01:02 AM
Benzo[b]fluoranthene	0.0743	0.0496	0.0991	0.0743	U	mg/Kg-dry	10	08/09/16 01:02 AM
Benzo[e]pyrene	0.0743	0.0496	0.0991	0.0743	U	mg/Kg-dry	10	08/09/16 01:02 AM
Benzo[g,h,i]perylene	0.0743	0.0496	0.0991	0.0743	U	mg/Kg-dry	10	08/09/16 01:02 AM
Benzo[j]fluoranthene	0.0743	0.0496	0.0991	0.0743	NU	mg/Kg-dry	10	08/09/16 01:02 AM
Benzo[k]fluoranthene	0.0743	0.0496	0.0991	0.0743	U	mg/Kg-dry	10	08/09/16 01:02 AM
Chrysene	0.0743	0.0496	0.0991	0.0743	U	mg/Kg-dry	10	08/09/16 01:02 AM
Dibenz[a,h]anthracene	0.0743	0.0496	0.0991	0.0743	U	mg/Kg-dry	10	08/09/16 01:02 AM
Fluoranthene	0.0743	0.0496	0.0991	0.0743	U	mg/Kg-dry	10	08/09/16 01:02 AM
Fluorene	0.0743	0.0496	0.0991	0.0743	U	mg/Kg-dry	10	08/09/16 01:02 AM
Indeno[1,2,3-cd]pyrene	0.0743	0.0496	0.0991	0.0743	U	mg/Kg-dry	10	08/09/16 01:02 AM
Phenanthrene	0.0743	0.0496	0.0991	0.0743	U	mg/Kg-dry	10	08/09/16 01:02 AM
Pyrene	0.0743	0.0496	0.0991	0.0743	U	mg/Kg-dry	10	08/09/16 01:02 AM
IS: Acenaphthene-d10	135	0	50-200	0		%REC	10	08/09/16 01:02 AM
IS: Chrysene-d12	112	0	50-200	0		%REC	10	08/09/16 01:02 AM
IS: Naphthalene-d8	106	0	50-200	0		%REC	10	08/09/16 01:02 AM
IS: Perylene-d12	114	0	50-200	0		%REC	10	08/09/16 01:02 AM
IS: Phenanthrene-d10	96.5	0	50-200	0		%REC	10	08/09/16 01:02 AM
Surr: 2-Fluorobiphenyl	77.9	0	46-115	0		%REC	10	08/09/16 01:02 AM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU129(4-6)-C
Project:	Laredo SGR	**Lab ID:**	1607314-05
Project No:	04285081.0000.00044	**Collection Date:**	07/26/16 11:36 AM
Lab Order:	1607314	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	86.1	0	58-133	0		%REC	10	08/09/16 01:02 AM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *17-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU129(6-8)-C
Project:	Laredo SGR	**Lab ID:**	1607314-06
Project No:	04285081.0000.00044	**Collection Date:**	07/26/16 11:38 AM
Lab Order:	1607314	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **CVD**
Lead	7.35	0.0917	0.275	0.138		mg/Kg-dry	5	08/10/16 06:48 PM
IS: Bismuth	79.9	0	30-120	0		%REC	5	08/10/16 06:48 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0737	0.0491	0.0982	0.0737	U	mg/Kg-dry	10	08/09/16 01:43 AM
Acenaphthylene	0.0737	0.0491	0.0982	0.0737	U	mg/Kg-dry	10	08/09/16 01:43 AM
Anthracene	0.0737	0.0491	0.0982	0.0737	U	mg/Kg-dry	10	08/09/16 01:43 AM
Benzo[a]anthracene	0.0737	0.0491	0.0982	0.0737	U	mg/Kg-dry	10	08/09/16 01:43 AM
Benzo[a]pyrene	0.0737	0.0491	0.0982	0.0737	U	mg/Kg-dry	10	08/09/16 01:43 AM
Benzo[b]fluoranthene	0.0737	0.0491	0.0982	0.0737	U	mg/Kg-dry	10	08/09/16 01:43 AM
Benzo[e]pyrene	0.0737	0.0491	0.0982	0.0737	U	mg/Kg-dry	10	08/09/16 01:43 AM
Benzo[g,h,i]perylene	0.0737	0.0491	0.0982	0.0737	U	mg/Kg-dry	10	08/09/16 01:43 AM
Benzo[j]fluoranthene	0.0737	0.0491	0.0982	0.0737	NU	mg/Kg-dry	10	08/09/16 01:43 AM
Benzo[k]fluoranthene	0.0737	0.0491	0.0982	0.0737	U	mg/Kg-dry	10	08/09/16 01:43 AM
Chrysene	0.0737	0.0491	0.0982	0.0737	U	mg/Kg-dry	10	08/09/16 01:43 AM
Dibenz[a,h]anthracene	0.0737	0.0491	0.0982	0.0737	U	mg/Kg-dry	10	08/09/16 01:43 AM
Fluoranthene	0.0737	0.0491	0.0982	0.0737	U	mg/Kg-dry	10	08/09/16 01:43 AM
Fluorene	0.0737	0.0491	0.0982	0.0737	U	mg/Kg-dry	10	08/09/16 01:43 AM
Indeno[1,2,3-cd]pyrene	0.0737	0.0491	0.0982	0.0737	U	mg/Kg-dry	10	08/09/16 01:43 AM
Phenanthrene	0.0737	0.0491	0.0982	0.0737	U	mg/Kg-dry	10	08/09/16 01:43 AM
Pyrene	0.0737	0.0491	0.0982	0.0737	U	mg/Kg-dry	10	08/09/16 01:43 AM
IS: Acenaphthene-d10	138	0	50-200	0		%REC	10	08/09/16 01:43 AM
IS: Chrysene-d12	116	0	50-200	0		%REC	10	08/09/16 01:43 AM
IS: Naphthalene-d8	109	0	50-200	0		%REC	10	08/09/16 01:43 AM
IS: Perylene-d12	118	0	50-200	0		%REC	10	08/09/16 01:43 AM
IS: Phenanthrene-d10	101	0	50-200	0		%REC	10	08/09/16 01:43 AM
Surr: 2-Fluorobiphenyl	72.7	0	46-115	0		%REC	10	08/09/16 01:43 AM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU129(6-8)-C
Project:	Laredo SGR	**Lab ID:**	1607314-06
Project No:	04285081.0000.00044	**Collection Date:**	07/26/16 11:38 AM
Lab Order:	1607314	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	81.4	0	58-133	0		%REC	10	08/09/16 01:43 AM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	EB01(20160726)
Project:	Laredo SGR	**Lab ID:**	1607314-07
Project No:	04285081.0000.00044	**Collection Date:**	07/26/16 11:45 AM
Lab Order:	1607314	**Matrix:**	EQUIP BLANK

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER			**SW6020A**					Analyst: **CVD**
Lead	0.000900	0.000300	0.00100	0.000900	U	mg/L	1	08/10/16 02:10 AM
IS: Bismuth	89.1	0	30-120	0		%REC	1	08/10/16 02:10 AM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Acenaphthene	0.0000789	0.0000493	0.0000987	0.0000789	U	mg/L	1	08/03/16 06:27 PM
Acenaphthylene	0.0000789	0.0000493	0.0000987	0.0000789	U	mg/L	1	08/03/16 06:27 PM
Anthracene	0.0000789	0.0000493	0.0000987	0.0000789	U	mg/L	1	08/03/16 06:27 PM
Benzo[a]anthracene	0.0000789	0.0000493	0.0000987	0.0000789	U	mg/L	1	08/03/16 06:27 PM
Benzo[a]pyrene	0.0000789	0.0000493	0.0000987	0.0000789	U	mg/L	1	08/03/16 06:27 PM
Benzo[b]fluoranthene	0.0000789	0.0000493	0.0000987	0.0000789	U	mg/L	1	08/03/16 06:27 PM
Benzo[e]pyrene	0.0000789	0.0000493	0.0000987	0.0000789	U	mg/L	1	08/03/16 06:27 PM
Benzo[g,h,i]perylene	0.0000789	0.0000493	0.0000987	0.0000789	U	mg/L	1	08/03/16 06:27 PM
Benzo[j]fluoranthene	0.0000789	0.0000493	0.0000987	0.0000789	NU	mg/L	1	08/03/16 06:27 PM
Benzo[k]fluoranthene	0.0000789	0.0000493	0.0000987	0.0000789	U	mg/L	1	08/03/16 06:27 PM
Chrysene	0.0000789	0.0000493	0.0000987	0.0000789	U	mg/L	1	08/03/16 06:27 PM
Dibenz[a,h]anthracene	0.0000789	0.0000493	0.0000987	0.0000789	U	mg/L	1	08/03/16 06:27 PM
Fluoranthene	0.0000789	0.0000493	0.0000987	0.0000789	U	mg/L	1	08/03/16 06:27 PM
Fluorene	0.0000789	0.0000493	0.0000987	0.0000789	U	mg/L	1	08/03/16 06:27 PM
Indeno[1,2,3-cd]pyrene	0.0000789	0.0000493	0.0000987	0.0000789	U	mg/L	1	08/03/16 06:27 PM
Phenanthrene	0.0000789	0.0000493	0.0000987	0.0000789	U	mg/L	1	08/03/16 06:27 PM
Pyrene	0.0000789	0.0000493	0.0000987	0.0000789	U	mg/L	1	08/03/16 06:27 PM
IS: Acenaphthene-d10	113	0	50-200	0		%REC	1	08/03/16 06:27 PM
IS: Chrysene-d12	96.8	0	50-200	0		%REC	1	08/03/16 06:27 PM
IS: Naphthalene-d8	98.0	0	50-200	0		%REC	1	08/03/16 06:27 PM
IS: Perylene-d12	98.1	0	50-200	0		%REC	1	08/03/16 06:27 PM
IS: Phenanthrene-d10	114	0	50-200	0		%REC	1	08/03/16 06:27 PM
Surr: 2-Fluorobiphenyl	74.8	0	53-106	0		%REC	1	08/03/16 06:27 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	EB01(20160726)
Project:	Laredo SGR	**Lab ID:**	1607314-07
Project No:	04285081.0000.00044	**Collection Date:**	07/26/16 11:45 AM
Lab Order:	1607314	**Matrix:**	EQUIP BLANK

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Surr: 4-Terphenyl-d14	61.2	0	58-132	0		%REC	1	08/03/16 06:27 PM

Qualifiers:	*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
	C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
	E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
	MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
	RL	Reporting Limit	S	Spike Recovery outside control limits
	N	Parameter not NELAC certified		

CLIENT: Arcadis
Work Order: 1607314
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS3_160729A

Sample ID **DCS1-76274**	Batch ID: **76274**	TestNo: **SW6020A**	Units: **mg/Kg**		
SampType: **DCS**	Run ID: **ICP-MS3_160729A**	Analysis Date: **7/29/2016 1:13:00 PM**	Prep Date: **7/18/2016**		

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.249	0.300	0.2500	0	99.7	80	120	0	0	
IS: Bismuth	50.0		200.0		97.1	70	200	0	0	

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1607314
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS3_160729A

Sample ID **DCS1-76458**	Batch ID: **76458**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **DCS**	Run ID: **ICP-MS3_160729A**	Analysis Date: **7/29/2016 1:50:00 PM**	Prep Date: **7/26/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.000493	0.00100	0.000500	0	98.7	80	120	0	0	

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1607314
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS3_160809B

The QC data in batch 76687 applies to the following samples: 1607314-07A

Sample ID **MB-76687**	Batch ID: **76687**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **MBLK**	Run ID: **ICP-MS3_160809B**	Analysis Date: **8/9/2016 10:57:00 PM**	Prep Date: **8/5/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.000900	0.00100								U
IS: Bismuth	0.200		0.200		89.9	30	120			

Sample ID **LCS-76687**	Batch ID: **76687**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **LCS**	Run ID: **ICP-MS3_160809B**	Analysis Date: **8/9/2016 11:03:00 PM**	Prep Date: **8/5/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.200	0.00100	0.200	0	100	88	115			
IS: Bismuth	0.200		0.200		83.5	30	120			

Sample ID **LCSD-76687**	Batch ID: **76687**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **LCSD**	Run ID: **ICP-MS3_160809B**	Analysis Date: **8/9/2016 11:09:00 PM**	Prep Date: **8/5/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.201	0.00100	0.200	0	101	88	115	0.498	20	
IS: Bismuth	0.200		0.200		82.3	30	120	0	0	

Sample ID **1607337-26A PDS**	Batch ID: **76687**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **PDS**	Run ID: **ICP-MS3_160809B**	Analysis Date: **8/10/2016 12:34:00 AM**	Prep Date: **8/5/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.193	0.00100	0.200	0	96.6	80	120			
IS: Bismuth	0.200		0.200		84.0	30	120			

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1607314
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS3_160809B

Sample ID **ICV1-160809**	Batch ID: **R87530**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **ICV**	Run ID: **ICP-MS3_160809B**	Analysis Date: **8/9/2016 1:42:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.0966	0.00100	0.100	0	96.6	90	110			
IS: Bismuth	0.200		0.200		89.0	30	120			

Sample ID **ILCVL-160809**	Batch ID: **R87530**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **LCVL**	Run ID: **ICP-MS3_160809B**	Analysis Date: **8/9/2016 1:54:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.00106	0.00100	0.00100	0	106	80	120			
IS: Bismuth	0.200		0.200		88.8	30	120			

Sample ID **CCV5-160809**	Batch ID: **R87530**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **CCV**	Run ID: **ICP-MS3_160809B**	Analysis Date: **8/9/2016 10:34:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.203	0.00100	0.200	0	102	90	110			
IS: Bismuth	0.200		0.200		83.9	30	120			

Sample ID **LCVL5-160809**	Batch ID: **R87530**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **LCVL**	Run ID: **ICP-MS3_160809B**	Analysis Date: **8/9/2016 10:45:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.00107	0.00100	0.00100	0	107	80	120			
IS: Bismuth	0.200		0.200		86.9	30	120			

Sample ID **CCV6-160809**	Batch ID: **R87530**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **CCV**	Run ID: **ICP-MS3_160809B**	Analysis Date: **8/10/2016 12:40:00 AM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.199	0.00100	0.200	0	99.5	90	110			
IS: Bismuth	0.200		0.200		82.3	30	120			

Sample ID **LCVL6-160809**	Batch ID: **R87530**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **LCVL**	Run ID: **ICP-MS3_160809B**	Analysis Date: **8/10/2016 12:52:00 AM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.00104	0.00100	0.00100	0	104	80	120			
IS: Bismuth	0.200		0.200		86.6	30	120			

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1607314
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS3_160809B

Sample ID **CCV7-160809**	Batch ID: **R87530**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **CCV**	Run ID: **ICP-MS3_160809B**	Analysis Date: **8/10/2016 2:34:00 AM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.201	0.00100	0.200	0	101	90	110			
IS: Bismuth	0.200		0.200		82.3	30	120			

Sample ID **LCVL7-160809**	Batch ID: **R87530**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **LCVL**	Run ID: **ICP-MS3_160809B**	Analysis Date: **8/10/2016 2:46:00 AM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.00105	0.00100	0.00100	0	105	80	120			
IS: Bismuth	0.200		0.200		86.2	30	120			

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1607314
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS3_160810B

The QC data in batch 76690 applies to the following samples: 1607314-01A, 1607314-02A, 1607314-03A, 1607314-04A, 1607314-05A, 1607314-06A

Sample ID **MB-76690**	Batch ID: **76690**	TestNo: **SW6020A**	Units: **mg/Kg-dry**
SampType: **MBLK**	Run ID: **ICP-MS3_160810B**	Analysis Date: **8/10/2016 4:02:00 PM**	Prep Date: **8/5/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.150	0.300								U
IS: Bismuth	50.0		200.0		96.0	30	120			

Sample ID **LCS-76690**	Batch ID: **76690**	TestNo: **SW6020A**	Units: **mg/Kg-dry**
SampType: **LCS**	Run ID: **ICP-MS3_160810B**	Analysis Date: **8/10/2016 4:08:00 PM**	Prep Date: **8/5/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	51.6	0.300	50.00	0	103	84	118			
IS: Bismuth	50.0		200.0		93.0	30	120			

Sample ID **LCSD-76690**	Batch ID: **76690**	TestNo: **SW6020A**	Units: **mg/Kg-dry**
SampType: **LCSD**	Run ID: **ICP-MS3_160810B**	Analysis Date: **8/10/2016 4:14:00 PM**	Prep Date: **8/5/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	51.8	0.300	50.00	0	104	84	118	0.193	20	
IS: Bismuth	50.0		200.0		92.3	30	120	0	0	

Sample ID **1607314-03A SD**	Batch ID: **76690**	TestNo: **SW6020A**	Units: **mg/Kg-dry**
SampType: **SD**	Run ID: **ICP-MS3_160810B**	Analysis Date: **8/10/2016 4:31:00 PM**	Prep Date: **8/5/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	18.7	1.28	0	18.89				1.03	10	
IS: Bismuth	214		170.9		93.6	30	120	0	0	

Sample ID **1607314-03A PDS**	Batch ID: **76690**	TestNo: **SW6020A**	Units: **mg/Kg-dry**
SampType: **PDS**	Run ID: **ICP-MS3_160810B**	Analysis Date: **8/10/2016 5:55:00 PM**	Prep Date: **8/5/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	63.1	0.256	42.74	18.89	103	80	120			
IS: Bismuth	42.7		854.7		84.2	30	120			

Sample ID **1607314-03A MS**	Batch ID: **76690**	TestNo: **SW6020A**	Units: **mg/Kg-dry**
SampType: **MS**	Run ID: **ICP-MS3_160810B**	Analysis Date: **8/10/2016 6:00:00 PM**	Prep Date: **8/5/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	72.4	0.291	48.54	18.89	110	84	118			
IS: Bismuth	48.5		194.2		83.1	30	120			

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1607314
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS3_160810B

Sample ID **1607314-03A MSD**	Batch ID: **76690**	TestNo: **SW6020A**	Units: **mg/Kg-dry**		
SampType: **MSD**	Run ID: **ICP-MS3_160810B**	Analysis Date: **8/10/2016 6:06:00 PM**	Prep Date: **8/5/2016**		

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	72.5	0.278	46.30	18.89	116	84	118	0.233	20	
IS: Bismuth	46.3		185.2		82.0	30	120	0	0	

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1607314
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS3_160810B

Sample ID **ICV1-160810**	Batch ID: **R87549**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **ICV**	Run ID: **ICP-MS3_160810B**	Analysis Date: **8/10/2016 12:47:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.0975	0.00100	0.100	0	97.5	90	110			
IS: Bismuth	0.200		0.200		93.1	30	120			

Sample ID **ICV1-160810**	Batch ID: **R87549**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **ICV**	Run ID: **ICP-MS3_160810B**	Analysis Date: **8/10/2016 12:59:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.0977	0.00100	0.100	0	97.7	90	110			
IS: Bismuth	0.200		0.200		91.1	30	120			

Sample ID **ILCVL-160810**	Batch ID: **R87549**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **LCVL**	Run ID: **ICP-MS3_160810B**	Analysis Date: **8/10/2016 1:05:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.00110	0.00100	0.00100	0	110	80	120			
IS: Bismuth	0.200		0.200		91.5	30	120			

Sample ID **CCV1-160810**	Batch ID: **R87549**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **CCV**	Run ID: **ICP-MS3_160810B**	Analysis Date: **8/10/2016 3:38:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.204	0.00100	0.200	0	102	90	110			
IS: Bismuth	0.200		0.200		93.0	30	120			

Sample ID **LCVL1-160810**	Batch ID: **R87549**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **LCVL**	Run ID: **ICP-MS3_160810B**	Analysis Date: **8/10/2016 3:50:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.00113	0.00100	0.00100	0	113	80	120			
IS: Bismuth	0.200		0.200		94.4	30	120			

Sample ID **CCV2-160810**	Batch ID: **R87549**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **CCV**	Run ID: **ICP-MS3_160810B**	Analysis Date: **8/10/2016 6:12:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.208	0.00100	0.200	0	104	90	110			
IS: Bismuth	0.200		0.200		83.3	30	120			

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1607314
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS3_160810B

Sample ID **LCVL2-160810**	Batch ID: **R87549**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **LCVL**	Run ID: **ICP-MS3_160810B**	Analysis Date: **8/10/2016 6:24:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.00116	0.00100	0.00100	0	116	80	120			
IS: Bismuth	0.200		0.200		84.8	30	120			

Sample ID **CCV3-160810**	Batch ID: **R87549**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **CCV**	Run ID: **ICP-MS3_160810B**	Analysis Date: **8/10/2016 7:41:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.203	0.00100	0.200	0	102	90	110			
IS: Bismuth	0.200		0.200		77.4	30	120			

Sample ID **LCVL3-160810**	Batch ID: **R87549**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **LCVL**	Run ID: **ICP-MS3_160810B**	Analysis Date: **8/10/2016 7:53:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.00109	0.00100	0.00100	0	109	80	120			
IS: Bismuth	0.200		0.200		80.7	30	120			

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1607314
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: GCMS6_160802A

Sample ID **DCS-76288**	Batch ID: **76288**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **DCS**	Run ID: **GCMS6_160802A**	Analysis Date: **8/3/2016 9:01:00 AM**	Prep Date: **7/18/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.00764	0.0100	0.01000	0	76.4	20	200	0	0	
Acenaphthylene	0.00762	0.0100	0.01000	0	76.2	20	200	0	0	
Anthracene	0.00800	0.0100	0.01000	0	80.0	20	200	0	0	
Benzo[a]anthracene	0.00849	0.0100	0.01000	0	84.9	20	200	0	0	
Benzo[a]pyrene	0.00833	0.0100	0.01000	0	83.3	20	200	0	0	
Benzo[b]fluoranthene	0.00835	0.0100	0.01000	0	83.5	20	200	0	0	
Benzo[e]pyrene	0.00941	0.0100	0.01000	0	94.1	20	200	0	0	
Benzo[g,h,i]perylene	0.00998	0.0100	0.01000	0	99.8	20	200	0	0	
Benzo[j]fluoranthene	0.00886	0.0100	0.01000	0	88.6	20	200	0	0	N
Benzo[k]fluoranthene	0.00876	0.0100	0.01000	0	87.6	20	200	0	0	
Chrysene	0.00879	0.0100	0.01000	0	87.9	20	200	0	0	
Dibenz[a,h]anthracene	0.00939	0.0100	0.01000	0	93.9	20	200	0	0	
Fluoranthene	0.00799	0.0100	0.01000	0	79.9	20	200	0	0	
Fluorene	0.00780	0.0100	0.01000	0	78.0	20	200	0	0	
Indeno[1,2,3-cd]pyrene	0.00980	0.0100	0.01000	0	98.0	20	200	0	0	
Phenanthrene	0.00897	0.0100	0.01000	0	89.7	20	200	0	0	
Pyrene	0.00754	0.0100	0.01000	0	75.4	20	200	0	0	

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1607314
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: GCMS6_160808A

The QC data in batch 76583 applies to the following samples: 1607314-01A, 1607314-02A, 1607314-03A, 1607314-04A, 1607314-05A, 1607314-06A

Sample ID **LCS-76583** Batch ID: **76583** TestNo: **SW8270D-LL** Units: **mg/Kg-dry**
SampType: **LCS** Run ID: **GCMS6_160808A** Analysis Date: **8/8/2016 11:30:00 AM** Prep Date: **8/1/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.804	0.0100	1.000	0	80.4	44	111			
Acenaphthylene	0.795	0.0100	1.000	0	79.5	39	116			
Anthracene	0.768	0.0100	1.000	0	76.8	50	114			
Benzo[a]anthracene	0.831	0.0100	1.000	0	83.1	54	122			
Benzo[a]pyrene	0.804	0.0100	1.000	0	80.4	50	125			
Benzo[b]fluoranthene	0.843	0.0100	1.000	0	84.3	53	128			
Benzo[e]pyrene	0.850	0.0100	1.000	0	85.0	43	140			
Benzo[g,h,i]perylene	0.810	0.0100	1.000	0	81.0	49	127			
Benzo[j]fluoranthene	0.860	0.0100	1.000	0	86.0	45	125			N
Benzo[k]fluoranthene	0.845	0.0100	1.000	0	84.5	56	123			
Chrysene	0.796	0.0100	1.000	0	79.6	57	118			
Dibenz[a,h]anthracene	0.847	0.0100	1.000	0	84.7	50	129			
Fluoranthene	0.818	0.0100	1.000	0	81.8	55	119			
Fluorene	0.813	0.0100	1.000	0	81.3	47	114			
Indeno[1,2,3-cd]pyrene	0.853	0.0100	1.000	0	85.3	49	130			
Phenanthrene	0.803	0.0100	1.000	0	80.3	49	113			
Pyrene	0.814	0.0100	1.000	0	81.4	55	117			
IS: Acenaphthene-d10	4.00		4.000		125	50	200			
IS: Chrysene-d12	4.00		4.000		110	50	200			
IS: Naphthalene-d8	4.00		4.000		110	50	200			
IS: Perylene-d12	4.00		4.000		110	50	200			
IS: Phenanthrene-d10	4.00		4.000		98.4	50	200			
Surr: 2-Fluorobiphenyl	0.759		1.000		75.9	46	115			
Surr: 4-Terphenyl-d14	0.893		1.000		89.3	58	133			

Sample ID **MB-76583** Batch ID: **76583** TestNo: **SW8270D-LL** Units: **mg/Kg-dry**
SampType: **MBLK** Run ID: **GCMS6_160808A** Analysis Date: **8/8/2016 12:10:00 PM** Prep Date: **8/1/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.00750	0.0100								U
Acenaphthylene	0.00750	0.0100								U
Anthracene	0.00750	0.0100								U
Benzo[a]anthracene	0.00750	0.0100								U
Benzo[a]pyrene	0.00750	0.0100								U
Benzo[b]fluoranthene	0.00750	0.0100								U
Benzo[e]pyrene	0.00750	0.0100								U
Benzo[g,h,i]perylene	0.00750	0.0100								U
Benzo[j]fluoranthene	0.00750	0.0100								NU
Benzo[k]fluoranthene	0.00750	0.0100								U
Chrysene	0.00750	0.0100								U

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1607314
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: GCMS6_160808A

Sample ID **MB-76583**	Batch ID: **76583**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **MBLK**	Run ID: **GCMS6_160808A**	Analysis Date: **8/8/2016 12:10:00 PM**	Prep Date: **8/1/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Dibenz[a,h]anthracene	0.00750	0.0100								U
Fluoranthene	0.00750	0.0100								U
Fluorene	0.00750	0.0100								U
Indeno[1,2,3-cd]pyrene	0.00750	0.0100								U
Phenanthrene	0.00750	0.0100								U
Pyrene	0.00750	0.0100								U
IS: Acenaphthene-d10	4.00		4.000		132	50	200			
IS: Chrysene-d12	4.00		4.000		115	50	200			
IS: Naphthalene-d8	4.00		4.000		116	50	200			
IS: Perylene-d12	4.00		4.000		114	50	200			
IS: Phenanthrene-d10	4.00		4.000		102	50	200			
Surr: 2-Fluorobiphenyl	0.732		1.000		73.2	46	115			
Surr: 4-Terphenyl-d14	0.840		1.000		84.0	58	133			

Sample ID **SB-160808**	Batch ID: **76583**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **SBLK**	Run ID: **GCMS6_160808A**	Analysis Date: **8/8/2016 11:41:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.00750	0.0100	0							U
Acenaphthylene	0.00750	0.0100	0							U
Anthracene	0.00750	0.0100	0							U
Benzo[a]anthracene	0.00750	0.0100	0							U
Benzo[a]pyrene	0.00750	0.0100	0							U
Benzo[b]fluoranthene	0.00750	0.0100	0							U
Benzo[e]pyrene	0.00750	0.0100	0							U
Benzo[g,h,i]perylene	0.00750	0.0100	0							U
Benzo[j]fluoranthene	0.00750	0.0100	0							NU
Benzo[k]fluoranthene	0.00750	0.0100	0							U
Chrysene	0.00750	0.0100	0							U
Dibenz[a,h]anthracene	0.00750	0.0100	0							U
Fluoranthene	0.00750	0.0100	0							U
Fluorene	0.00750	0.0100	0							U
Indeno[1,2,3-cd]pyrene	0.00750	0.0100	0							U
Phenanthrene	0.00750	0.0100	0							U
Pyrene	0.00750	0.0100	0							U
IS: Acenaphthene-d10	4.00		0							
IS: Chrysene-d12	4.00		0							
IS: Naphthalene-d8	4.00		0							
IS: Perylene-d12	4.00		0							
IS: Phenanthrene-d10	4.00		0							
Surr: 2-Fluorobiphenyl	0.000110		0							

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1607314
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: GCMS6_160808A

Sample ID **SB-160808**	Batch ID: **76583**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **SBLK**	Run ID: **GCMS6_160808A**	Analysis Date: **8/8/2016 11:41:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Terphenyl-d14	0.0000100		0							

Sample ID **1607314-03AMS**	Batch ID: **76583**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **MS**	Run ID: **GCMS6_160808A**	Analysis Date: **8/9/2016 5:05:00 AM**	Prep Date: **8/1/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.722	0.0976	0.9756	0	74.0	44	111			
Acenaphthylene	0.688	0.0976	0.9756	0	70.5	39	116			
Anthracene	0.682	0.0976	0.9756	0	69.9	50	114			
Benzo[a]anthracene	0.766	0.0976	0.9756	0	78.5	54	122			
Benzo[a]pyrene	0.810	0.0976	0.9756	0.05298	77.6	50	125			
Benzo[b]fluoranthene	0.806	0.0976	0.9756	0.05070	77.4	53	128			
Benzo[e]pyrene	0.835	0.0976	0.9756	0	85.6	43	140			
Benzo[g,h,i]perylene	0.884	0.0976	0.9756	0	90.6	49	127			
Benzo[j]fluoranthene	0.798	0.0976	0.9756	0	81.8	45	125			N
Benzo[k]fluoranthene	0.799	0.0976	0.9756	0	81.9	56	123			
Chrysene	0.796	0.0976	0.9756	0	81.6	57	118			
Dibenz[a,h]anthracene	0.800	0.0976	0.9756	0	82.0	50	129			
Fluoranthene	0.808	0.0976	0.9756	0.06173	76.5	55	119			
Fluorene	0.720	0.0976	0.9756	0	73.8	47	114			
Indeno[1,2,3-cd]pyrene	0.856	0.0976	0.9756	0	87.8	49	130			
Phenanthrene	0.763	0.0976	0.9756	0	78.2	49	113			
Pyrene	0.821	0.0976	0.9756	0.05845	78.1	55	117			
IS: Acenaphthene-d10	39.0		3.902		134	50	200			
IS: Chrysene-d12	39.0		3.902		114	50	200			
IS: Naphthalene-d8	39.0		3.902		106	50	200			
IS: Perylene-d12	39.0		3.902		115	50	200			
IS: Phenanthrene-d10	39.0		3.902		97.8	50	200			
Surr: 2-Fluorobiphenyl	0.682		0.9756		69.9	46	115			
Surr: 4-Terphenyl-d14	0.747		0.9756		76.5	58	133			

Sample ID **1607314-03AMSD**	Batch ID: **76583**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **MSD**	Run ID: **GCMS6_160808A**	Analysis Date: **8/9/2016 5:45:00 AM**	Prep Date: **8/1/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.736	0.0999	0.9990	0	73.7	44	111	1.95	20	
Acenaphthylene	0.699	0.0999	0.9990	0	70.0	39	116	1.63	20	
Anthracene	0.690	0.0999	0.9990	0	69.1	50	114	1.22	20	
Benzo[a]anthracene	0.778	0.0999	0.9990	0	77.9	54	122	1.63	20	
Benzo[a]pyrene	0.800	0.0999	0.9990	0.05298	74.7	50	125	1.30	20	
Benzo[b]fluoranthene	0.829	0.0999	0.9990	0.05070	77.9	53	128	2.79	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1607314
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: GCMS6_160808A

Sample ID **1607314-03AMSD** Batch ID: **76583** TestNo: **SW8270D-LL** Units: **mg/Kg-dry**
SampType: **MSD** Run ID: **GCMS6_160808A** Analysis Date: **8/9/2016 5:45:00 AM** Prep Date: **8/1/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzo[e]pyrene	0.833	0.0999	0.9990	0	83.4	43	140	0.223	20	
Benzo[g,h,i]perylene	0.892	0.0999	0.9990	0	89.3	49	127	0.835	20	
Benzo[j]fluoranthene	0.801	0.0999	0.9990	0	80.1	45	125	0.368	20	N
Benzo[k]fluoranthene	0.804	0.0999	0.9990	0	80.4	56	123	0.607	20	
Chrysene	0.793	0.0999	0.9990	0	79.4	57	118	0.352	20	
Dibenz[a,h]anthracene	0.808	0.0999	0.9990	0	80.9	50	129	1.06	20	
Fluoranthene	0.804	0.0999	0.9990	0.06173	74.3	55	119	0.498	20	
Fluorene	0.734	0.0999	0.9990	0	73.5	47	114	1.95	20	
Indeno[1,2,3-cd]pyrene	0.867	0.0999	0.9990	0	86.8	49	130	1.19	20	
Phenanthrene	0.754	0.0999	0.9990	0	75.5	49	113	1.20	20	
Pyrene	0.804	0.0999	0.9990	0.05845	74.6	55	117	2.05	20	
IS: Acenaphthene-d10	40.0		3.996		135	50	200	0	0	
IS: Chrysene-d12	40.0		3.996		114	50	200	0	0	
IS: Naphthalene-d8	40.0		3.996		106	50	200	0	0	
IS: Perylene-d12	40.0		3.996		116	50	200	0	0	
IS: Phenanthrene-d10	40.0		3.996		97.2	50	200	0	0	
Surr: 2-Fluorobiphenyl	0.721		0.9990		72.1	46	115	0	0	
Surr: 4-Terphenyl-d14	0.775		0.9990		77.6	58	133	0	0	

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1607314
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: GCMS6_160808A

Sample ID **ICV-160808**	Batch ID: **R87483**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **ICV**	Run ID: **GCMS6_160808A**	Analysis Date: **8/8/2016 10:50:00 AM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	1.89	0.0100	2.000	0	94.5	80	120			
Acenaphthylene	1.89	0.0100	2.000	0	94.7	80	120			
Anthracene	1.81	0.0100	2.000	0	90.6	80	120			
Benzo[a]anthracene	1.90	0.0100	2.000	0	95.2	80	120			
Benzo[a]pyrene	1.90	0.0100	2.000	0	95.2	80	120			
Benzo[b]fluoranthene	1.92	0.0100	2.000	0	96.0	80	120			
Benzo[e]pyrene	1.90	0.0100	2.000	0	95.2	80	120			
Benzo[g,h,i]perylene	1.83	0.0100	2.000	0	91.6	80	120			
Benzo[j]fluoranthene	1.93	0.0100	2.000	0	96.3	80	120			N
Benzo[k]fluoranthene	1.96	0.0100	2.000	0	97.9	80	120			
Chrysene	1.86	0.0100	2.000	0	92.9	80	120			
Dibenz[a,h]anthracene	1.93	0.0100	2.000	0	96.5	80	120			
Fluoranthene	1.78	0.0100	2.000	0	88.9	80	120			
Fluorene	1.90	0.0100	2.000	0	95.2	80	120			
Indeno[1,2,3-cd]pyrene	1.91	0.0100	2.000	0	95.3	80	120			
Phenanthrene	1.82	0.0100	2.000	0	91.2	80	120			
Pyrene	1.79	0.0100	2.000	0	89.4	80	120			
IS: Acenaphthene-d10	4.00		4.000		145	50	200			
IS: Chrysene-d12	4.00		4.000		125	50	200			
IS: Naphthalene-d8	4.00		4.000		109	50	200			
IS: Perylene-d12	4.00		4.000		132	50	200			
IS: Phenanthrene-d10	4.00		4.000		107	50	200			
Surr: 2-Fluorobiphenyl	1.77		2.000		88.4	65	120			
Surr: 4-Terphenyl-d14	1.92		2.000		95.9	65	120			

Sample ID **ICV2-160808**	Batch ID: **R87483**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **ICV**	Run ID: **GCMS6_160808A**	Analysis Date: **8/8/2016 10:19:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	1.89	0.0100	2.000	0	94.7	80	120			
Acenaphthylene	1.86	0.0100	2.000	0	93.2	80	120			
Anthracene	1.79	0.0100	2.000	0	89.4	80	120			
Benzo[a]anthracene	1.89	0.0100	2.000	0	94.6	80	120			
Benzo[a]pyrene	1.90	0.0100	2.000	0	95.0	80	120			
Benzo[b]fluoranthene	1.90	0.0100	2.000	0	95.2	80	120			
Benzo[e]pyrene	1.92	0.0100	2.000	0	95.9	80	120			
Benzo[g,h,i]perylene	2.03	0.0100	2.000	0	102	80	120			
Benzo[j]fluoranthene	1.95	0.0100	2.000	0	97.6	80	120			N
Benzo[k]fluoranthene	1.95	0.0100	2.000	0	97.3	80	120			
Chrysene	1.86	0.0100	2.000	0	92.8	80	120			
Dibenz[a,h]anthracene	2.06	0.0100	2.000	0	103	80	120			

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1607314
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: GCMS6_160808A

Sample ID **ICV2-160808**	Batch ID: **R87483**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **ICV**	Run ID: **GCMS6_160808A**	Analysis Date: **8/8/2016 10:19:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoranthene	1.75	0.0100	2.000	0	87.7	80	120			
Fluorene	1.89	0.0100	2.000	0	94.6	80	120			
Indeno[1,2,3-cd]pyrene	2.03	0.0100	2.000	0	101	80	120			
Phenanthrene	1.81	0.0100	2.000	0	90.5	80	120			
Pyrene	1.77	0.0100	2.000	0	88.5	80	120			
IS: Acenaphthene-d10	4.00		4.000		145	50	200			
IS: Chrysene-d12	4.00		4.000		126	50	200			
IS: Naphthalene-d8	4.00		4.000		111	50	200			
IS: Perylene-d12	4.00		4.000		130	50	200			
IS: Phenanthrene-d10	4.00		4.000		108	50	200			
Surr: 2-Fluorobiphenyl	1.77		2.000		88.7	65	120			
Surr: 4-Terphenyl-d14	1.90		2.000		95.1	65	120			

Sample ID **CCV1-160808**	Batch ID: **R87483**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **CCV**	Run ID: **GCMS6_160808A**	Analysis Date: **8/9/2016 6:25:00 AM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.966	0.0100	1.000	0	96.6	50	150			
Acenaphthylene	0.962	0.0100	1.000	0	96.2	50	150			
Anthracene	0.920	0.0100	1.000	0	92.0	50	150			
Benzo[a]anthracene	0.976	0.0100	1.000	0	97.6	50	150			
Benzo[a]pyrene	0.982	0.0100	1.000	0	98.2	50	150			
Benzo[b]fluoranthene	1.01	0.0100	1.000	0	101	50	150			
Benzo[e]pyrene	0.985	0.0100	1.000	0	98.5	50	150			
Benzo[g,h,i]perylene	1.05	0.0100	1.000	0	105	50	150			
Benzo[j]fluoranthene	0.997	0.0100	1.000	0	99.7	50	150			N
Benzo[k]fluoranthene	1.01	0.0100	1.000	0	101	50	150			
Chrysene	0.960	0.0100	1.000	0	96.0	50	150			
Dibenz[a,h]anthracene	1.06	0.0100	1.000	0	106	50	150			
Fluoranthene	0.912	0.0100	1.000	0	91.2	50	150			
Fluorene	0.961	0.0100	1.000	0	96.1	50	150			
Indeno[1,2,3-cd]pyrene	1.05	0.0100	1.000	0	105	50	150			
Phenanthrene	0.943	0.0100	1.000	0	94.3	50	150			
Pyrene	0.913	0.0100	1.000	0	91.3	50	150			
IS: Acenaphthene-d10	4.00		4.000		143	50	200			
IS: Chrysene-d12	4.00		4.000		121	50	200			
IS: Naphthalene-d8	4.00		4.000		111	50	200			
IS: Perylene-d12	4.00		4.000		124	50	200			
IS: Phenanthrene-d10	4.00		4.000		103	50	200			
Surr: 2-Fluorobiphenyl	0.902		1.000		90.2	50	150			
Surr: 4-Terphenyl-d14	0.938		1.000		93.8	50	150			

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1607314
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: GCMS8_160518A

Sample ID **DCS-75209**	Batch ID: **75209**	TestNo: **SW8270D-LL**	Units: **mg/L**
SampType: **DCS**	Run ID: **GCMS8_160518A**	Analysis Date: **5/18/2016 10:22:00 AM**	Prep Date: **5/17/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.0000307	0.0000500	0.0000400	0	76.8	20	170	0	0	
Acenaphthylene	0.0000308	0.0000500	0.0000400	0	77.0	20	170	0	0	
Anthracene	0.0000322	0.0000500	0.0000400	0	80.5	20	170	0	0	
Benzo[a]anthracene	0.0000306	0.0000500	0.0000400	0	76.4	20	170	0	0	
Benzo[a]pyrene	0.0000288	0.0000500	0.0000400	0	72.0	20	170	0	0	
Benzo[b]fluoranthene	0.0000304	0.0000500	0.0000400	0	76.0	20	170	0	0	
Benzo[e]pyrene	0.0000308	0.0000500	0.0000400	0	76.9	20	170	0	0	
Benzo[g,h,i]perylene	0.0000282	0.0000500	0.0000400	0	70.4	20	170	0	0	
Benzo[j]fluoranthene	0.0000254	0.0000500	0.0000400	0	63.6	20	170	0	0	N
Benzo[k]fluoranthene	0.0000283	0.0000500	0.0000400	0	70.8	20	170	0	0	
Chrysene	0.0000293	0.0000500	0.0000400	0	73.4	20	170	0	0	
Dibenz[a,h]anthracene	0.0000221	0.0000500	0.0000400	0	55.2	20	170	0	0	
Fluoranthene	0.0000331	0.0000500	0.0000400	0	82.7	20	170	0	0	
Fluorene	0.0000302	0.0000500	0.0000400	0	75.4	20	170	0	0	
Indeno[1,2,3-cd]pyrene	0.0000275	0.0000500	0.0000400	0	68.8	20	170	0	0	
Phenanthrene	0.0000339	0.0000500	0.0000400	0	84.6	20	170	0	0	
Pyrene	0.0000328	0.0000500	0.0000400	0	81.9	20	170	0	0	

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1607314
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: GCMS8_160803B

The QC data in batch 76564 applies to the following samples: 1607314-07B

Sample ID **LCS-76564** Batch ID: **76564** TestNo: **SW8270D-LL** Units: **mg/L**
SampType: **LCS** Run ID: **GCMS8_160803B** Analysis Date: **8/3/2016 9:49:00 AM** Prep Date: **7/29/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.00233	0.0000500	0.00400	0	58.2	48	114			
Acenaphthylene	0.00240	0.0000500	0.00400	0	59.9	35	121			
Anthracene	0.00241	0.0000500	0.00400	0	60.2	53	119			
Benzo[a]anthracene	0.00275	0.0000500	0.00400	0	68.9	59	120			
Benzo[a]pyrene	0.00278	0.0000500	0.00400	0	69.4	53	120			
Benzo[b]fluoranthene	0.00274	0.0000500	0.00400	0	68.4	53	126			
Benzo[e]pyrene	0.00273	0.0000500	0.00400	0	68.3	40	140			
Benzo[g,h,i]perylene	0.00273	0.0000500	0.00400	0	68.3	44	128			
Benzo[j]fluoranthene	0.00287	0.0000500	0.00400	0	71.7	45	124			N
Benzo[k]fluoranthene	0.00295	0.0000500	0.00400	0	73.8	54	125			
Chrysene	0.00264	0.0000500	0.00400	0	66.0	57	120			
Dibenz[a,h]anthracene	0.00280	0.0000500	0.00400	0	70.0	44	131			
Fluoranthene	0.00241	0.0000500	0.00400	0	60.4	58	120			
Fluorene	0.00257	0.0000500	0.00400	0	64.1	50	118			
Indeno[1,2,3-cd]pyrene	0.00284	0.0000500	0.00400	0	70.9	48	130			
Phenanthrene	0.00245	0.0000500	0.00400	0	61.3	53	115			
Pyrene	0.00237	0.0000500	0.00400	0	59.3	53	121			
IS: Acenaphthene-d10	0.00800		0.00800		98.9	50	200			
IS: Chrysene-d12	0.00800		0.00800		92.2	50	200			
IS: Naphthalene-d8	0.00800		0.00800		94.0	50	200			
IS: Perylene-d12	0.00800		0.00800		92.4	50	200			
IS: Phenanthrene-d10	0.00800		0.00800		103	50	200			
Surr: 2-Fluorobiphenyl	5.26		8.000		65.7	53	106			
Surr: 4-Terphenyl-d14	5.06		8.000		63.2	58	132			

Sample ID **MB-76564** Batch ID: **76564** TestNo: **SW8270D-LL** Units: **mg/L**
SampType: **MBLK** Run ID: **GCMS8_160803B** Analysis Date: **8/3/2016 11:08:00 AM** Prep Date: **7/29/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.0000400	0.0000500								U
Acenaphthylene	0.0000400	0.0000500								U
Anthracene	0.0000400	0.0000500								U
Benzo[a]anthracene	0.0000400	0.0000500								U
Benzo[a]pyrene	0.0000400	0.0000500								U
Benzo[b]fluoranthene	0.0000400	0.0000500								U
Benzo[e]pyrene	0.0000400	0.0000500								U
Benzo[g,h,i]perylene	0.0000400	0.0000500								U
Benzo[j]fluoranthene	0.0000400	0.0000500								NU
Benzo[k]fluoranthene	0.0000400	0.0000500								U
Chrysene	0.0000400	0.0000500								U

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1607314
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: GCMS8_160803B

Sample ID **MB-76564**	Batch ID: **76564**	TestNo: **SW8270D-LL**	Units: **mg/L**
SampType: **MBLK**	Run ID: **GCMS8_160803B**	Analysis Date: **8/3/2016 11:08:00 AM**	Prep Date: **7/29/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Dibenz[a,h]anthracene	0.0000400	0.0000500								U
Fluoranthene	0.0000400	0.0000500								U
Fluorene	0.0000400	0.0000500								U
Indeno[1,2,3-cd]pyrene	0.0000400	0.0000500								U
Phenanthrene	0.0000400	0.0000500								U
Pyrene	0.0000400	0.0000500								U
IS: Acenaphthene-d10	0.00800		0.00800		103	50	200			
IS: Chrysene-d12	0.00800		0.00800		91.9	50	200			
IS: Naphthalene-d8	0.00800		0.00800		94.6	50	200			
IS: Perylene-d12	0.00800		0.00800		92.8	50	200			
IS: Phenanthrene-d10	0.00800		0.00800		103	50	200			
Surr: 2-Fluorobiphenyl	5.72		8.000		71.6	53	106			
Surr: 4-Terphenyl-d14	5.05		8.000		63.1	58	132			

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1607314
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: GCMS8_160803B

Sample ID **ICV-160803**	Batch ID: **R87401**	TestNo: **SW8270D-LL**	Units: **mg/L**
SampType: **ICV**	Run ID: **GCMS8_160803B**	Analysis Date: **8/3/2016 9:09:00 AM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	1.98	0.0000500	2.00	0	98.9	80	120			
Acenaphthylene	2.01	0.0000500	2.00	0	100	80	120			
Anthracene	1.91	0.0000500	2.00	0	95.5	80	120			
Benzo[a]anthracene	2.07	0.0000500	2.00	0	103	80	120			
Benzo[a]pyrene	2.08	0.0000500	2.00	0	104	80	120			
Benzo[b]fluoranthene	2.10	0.0000500	2.00	0	105	80	120			
Benzo[e]pyrene	2.02	0.0000500	2.00	0	101	80	120			
Benzo[g,h,i]perylene	2.03	0.0000500	2.00	0	102	80	120			
Benzo[j]fluoranthene	2.10	0.0000500	2.00	0	105	80	120			N
Benzo[k]fluoranthene	2.16	0.0000500	2.00	0	108	80	120			
Chrysene	2.03	0.0000500	2.00	0	101	80	120			
Dibenz[a,h]anthracene	2.14	0.0000500	2.00	0	107	80	120			
Fluoranthene	1.94	0.0000500	2.00	0	97.0	80	120			
Fluorene	2.02	0.0000500	2.00	0	101	80	120			
Indeno[1,2,3-cd]pyrene	2.12	0.0000500	2.00	0	106	80	120			
Phenanthrene	1.90	0.0000500	2.00	0	95.0	80	120			
Pyrene	1.90	0.0000500	2.00	0	94.8	80	120			
IS: Acenaphthene-d10	4.00		4.00		100	50	200			
IS: Chrysene-d12	4.00		4.00		97.2	50	200			
IS: Naphthalene-d8	4.00		4.00		99.5	50	200			
IS: Perylene-d12	4.00		4.00		97.1	50	200			
IS: Phenanthrene-d10	4.00		4.00		102	50	200			
Surr: 2-Fluorobiphenyl	1930		2000		96.7	65	120			
Surr: 4-Terphenyl-d14	1910		2000		95.5	65	120			

Sample ID **ICV2-160803**	Batch ID: **R87401**	TestNo: **SW8270D-LL**	Units: **mg/L**
SampType: **ICV**	Run ID: **GCMS8_160803B**	Analysis Date: **8/3/2016 8:27:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	1.96	0.0000500	2.00	0	98.1	80	120			
Acenaphthylene	1.99	0.0000500	2.00	0	99.7	80	120			
Anthracene	1.87	0.0000500	2.00	0	93.3	80	120			
Benzo[a]anthracene	2.07	0.0000500	2.00	0	104	80	120			
Benzo[a]pyrene	2.07	0.0000500	2.00	0	104	80	120			
Benzo[b]fluoranthene	2.12	0.0000500	2.00	0	106	80	120			
Benzo[e]pyrene	2.02	0.0000500	2.00	0	101	80	120			
Benzo[g,h,i]perylene	2.10	0.0000500	2.00	0	105	80	120			
Benzo[j]fluoranthene	2.15	0.0000500	2.00	0	107	80	120			N
Benzo[k]fluoranthene	2.22	0.0000500	2.00	0	111	80	120			
Chrysene	2.01	0.0000500	2.00	0	101	80	120			
Dibenz[a,h]anthracene	2.19	0.0000500	2.00	0	110	80	120			

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1607314
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: GCMS8_160803B

Sample ID **ICV2-160803**	Batch ID: **R87401**	TestNo: **SW8270D-LL**	Units: **mg/L**
SampType: **ICV**	Run ID: **GCMS8_160803B**	Analysis Date: **8/3/2016 8:27:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoranthene	1.72	0.0000500	2.00	0	85.9	80	120			
Fluorene	2.20	0.0000500	2.00	0	110	80	120			
Indeno[1,2,3-cd]pyrene	2.17	0.0000500	2.00	0	109	80	120			
Phenanthrene	1.99	0.0000500	2.00	0	99.7	80	120			
Pyrene	1.67	0.0000500	2.00	0	83.5	80	120			
IS: Acenaphthene-d10	4.00		4.00		115	50	200			
IS: Chrysene-d12	4.00		4.00		97.7	50	200			
IS: Naphthalene-d8	4.00		4.00		98.7	50	200			
IS: Perylene-d12	4.00		4.00		97.0	50	200			
IS: Phenanthrene-d10	4.00		4.00		122	50	200			
Surr: 2-Fluorobiphenyl	2030		2000		102	65	120			
Surr: 4-Terphenyl-d14	1660		2000		82.8	65	120			

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1607314
Project: Laredo SGR

MQL SUMMARY REPORT

TestNo: SW6020A	MDL	MQL
Analyte	**mg/Kg-dry**	**mg/Kg-dry**
Lead	0.100	0.300

TestNo: SW6020A	MDL	MQL
Analyte	**mg/L**	**mg/L**
Lead	0.000300	0.00100

TestNo: SW8270D-LL	MDL	MQL
Analyte	**mg/Kg-dry**	**mg/Kg-dry**
Acenaphthene	0.00500	0.0100
Acenaphthylene	0.00500	0.0100
Anthracene	0.00500	0.0100
Benzo[a]anthracene	0.00500	0.0100
Benzo[a]pyrene	0.00500	0.0100
Benzo[b]fluoranthene	0.00500	0.0100
Benzo[e]pyrene	0.00500	0.0100
Benzo[g,h,i]perylene	0.00500	0.0100
Benzo[j]fluoranthene	0.00500	0.0100
Benzo[k]fluoranthene	0.00500	0.0100
Chrysene	0.00500	0.0100
Dibenz[a,h]anthracene	0.00500	0.0100
Fluoranthene	0.00500	0.0100
Fluorene	0.00500	0.0100
Indeno[1,2,3-cd]pyrene	0.00500	0.0100
Phenanthrene	0.00500	0.0100
Pyrene	0.00500	0.0100

TestNo: SW8270D-LL	MDL	MQL
Analyte	**mg/L**	**mg/L**
Acenaphthene	0.0000250	0.0000500
Acenaphthylene	0.0000250	0.0000500
Anthracene	0.0000250	0.0000500
Benzo[a]anthracene	0.0000250	0.0000500
Benzo[a]pyrene	0.0000250	0.0000500
Benzo[b]fluoranthene	0.0000250	0.0000500
Benzo[e]pyrene	0.0000250	0.0000500
Benzo[g,h,i]perylene	0.0000250	0.0000500
Benzo[j]fluoranthene	0.0000250	0.0000500
Benzo[k]fluoranthene	0.0000250	0.0000500
Chrysene	0.0000250	0.0000500
Dibenz[a,h]anthracene	0.0000250	0.0000500
Fluoranthene	0.0000250	0.0000500
Fluorene	0.0000250	0.0000500
Indeno[1,2,3-cd]pyrene	0.0000250	0.0000500
Phenanthrene	0.0000250	0.0000500
Pyrene	0.0000250	0.0000500

Qualifiers: MQL -Method Quantitation Limit as defined by TRRP
MDL -Method Detection Limit as defined by TRRP

GCMS6
For

DHL Work Order
1607314

GCMS6_160808A
For

DHL Work Order
1607314

Lab Data Review Check List
EPA Method 8270 / 625 - PAH: Polynuclear Aromatic Hydrocarbons

SEE RUN LOG FOR ALL PROJECT AND BATCH NUMBERS AND MATRICES	Run ID: GCMS6_160808A
Batch Number(s): See Run Log. Matrix: See Run Log.	SOP: ORGANICS-PAH-01

Review Item	Yes	No	N/A	2nd Level Review
Data Folder Contents 1. Is the Prep Batch Report included? Check and record the following: ***Prep Start/End Dates, Sample Amounts, Bottle #s***	X			x
2. Are the reagents and spikes listed on the Prep Batch Report current with a valid expiration date? ***All standard/QC sample preparations shall be documented in LIMS***	X			
3. Is the Run Log and instrument sequence included? ***Check the Test Code, Sample Type, Batch ID, and Analysis Date/Time***	X			
4. Is the System Verification - Tune Report included? ***Date/Tme of Tune starts 12-hour analysis window***	X			
5. Is the Evaluate Continuing Calibration Report included?	X			

Daily Demonstration of Performance

QC items that do not meet method/SOP/project requirements will be described on the run log. All variances that impact data quality will be described in the Variance/Comment Section on page 2.

Review Item	Frequency	Limits	Pass	Fail (List Batch/Sample) **See Run Log**	2nd Level Review
Tune	Before ICAL Every 12 hours	See Tune Eval Report	X		x
Resolution Check - Benzo(b) and Benzo(k)phenanthrene	Before ICAL Every 12 hours	Benzo(b) and Benzo(k) Valley > 50%	X		
Initial Calibration Curve (ICAL) (minimum: 5 Standards)	Prior to samples and when ICV fails	Avg. RF - %RSD ≤ 15% Curve (COD) - R^2 ≥ 0.990	X		
SSCV - (Second Source)	After calibration (ICAL)	80-120%	X		
ICV - (Daily Initial Cal Verification)	Every 12 hours	ISTDs Area% (50-200%) Surrogates %R (See LIMS) Analytes %R (80-120%)	X		

Review Item	Frequency	Limits	Pass	Fail	N/A	Review
Method Blank (MB) System Blank (SYS Blank)	Every Batch (MB) Daily (SYS BL)	< MDL / <½ RL (DoD) or <1/10 the sample/reg limit	X			x
Lab Control Sample (LCS)	Every Batch	See LIMS	X			
Lab Control Sample Dup (LCSD)	Insufficient sample Sample Matrix	See LIMS			X	
LCSD - RPD	Every LCS/LCSD	≤ 30 (Aq/Soil/DoD)			X	
Field Samples	Up to 20 per prep batch	ISTDs Area% (50-200%) Surrogates %R (See LIMS) RRT ± 0.06 RRT Standard Q value > 70 - check for #	X			
Matrix Spike (MS)	Every Batch/20 samples	See LIMS	X			
Matrix Spike Duplicate (MSD) (MSD is N/A for Method 625)	Every Prep Batch except Method 625	See LIMS	X			
MSD - RPD (MSD is N/A for Method 625)	Every MS/MSD except Method 625	≤ 30 (Aq/Soil/DoD)	X			

Lab Data Review Check List
EPA Method 8270 / 625 - PAH: Polynuclear Aromatic Hydrocarbons

Review Item	Criteria	Yes	No	N/A	2nd Level Review
Sample Analysis	7 days (Aq) - extraction			X	
1. Are all sample hold times met?	14 days (Soil) - extraction	X			
	40 days analysis	X			
2. Are all manual integrations signed (Before & After) and printouts included ? Put in LIMS Comment Section ***Include MI form for DoD work***	Before & After - signed Comment Section in LIMS MI Form - DoD only			X	x
3. Are all samples with concentrations > the highest standard used for calibration diluted and reanalyzed?	> highest standard			X	
Review Item #3 is N/A ONLY if all sample results are within Calibration range or NO if dilution is in different folder					
4. Is mass spectra reviewed/verified if Q value is <70 and/or # flag for results >MDL?	Q value <70 - All hits	X			x
5. Are ALL reported analytes > MDL (+ J flags) circled by the analyst?		X	**Return to analyst if NO**		
VARIANCE REPORT					
QC items that do not meet method/SOP/project requirements will be described on the run log. All variances that impact data quality will be described in this section.					
NON-CONFORMANCES / VARIANCE	All deviations from the method and SOP that affect data quality				
1. Are all non-conformances included and noted?				X	x
2. Are all corrective actions included?				X	
3. Does the variance require approval by the Technical Director/General Manager/QA Manager?				X	

Approved by: Date:

Description and Corrective Actions of QC items that do not meet method/SOP/project requirements:

****INCLUDE VARIANCE ITEM / REASON / CORRECTIVE ACTION / IMPACT ON DATA****

VARIANCE ITEM	REASON	CORRECTIVE ACTION
___ Hold Time exceeded (7D/14D-Ext/40D-Analysis)	___ Sample Received out of HT	___ Reanalyze QC to confirm
___ ICV out of control (±20%)	___ Carryover from previous run	___ Recalibrate
___ MB/SYS BL out of control (> MDL / >½ RL)	___ Cross contamination	___ Reprep/Reanalyze sample
___ LCS ___LCSD out of control (See LIMS)	___ Lab Artifact	___ Reprep/Reanalyze Batch
___ RPD out of control for LCS/LCSD (>30)	___ Prep Spike error (describe)	___ Reanalyze Batch/Sample/QC
___ MS ___ MSD out of control (See LIMS)	___ High Levels of target analytes	___ Verify H2O/reagents are clean
___ RPD out of control for MS/MSD (>30)	___ High Levels of non-targets	___ Reanalyze sample to confirm
___ Internal Standard(s) out of control	___ Insufficient sample for QC	___ Sample results ND w/ dilution
___ Multiple Surrogates out of control	___ Prep Error	___ Client notified and approved
___ No MS/MSD prepared - LCS/LCSD used instead	___ Analytical Error	___ Flag data / Case narrative
___ Missing QC (other than MS/MSD)	___ Client Request	___ Instrument Maintenance
___ QC sample(s) was mis-spiked	___ Other (describe below)	___ Accept data
___ Other (describe below)		___ Cannot reanalyze (HT out/Lack of Sample)

General Comments and Impact on Data: **See Run Log.**

Analyst: Don Winston Date: 8/9/2016

Second-Level Review: Janice Whitt Date: 8/15/2016

REVIEWED BY
By Janice Whitt at 4:46:18 PM, 8/15/2016

DHL Analytical, Inc.

Run ID: GCMS6_160808A **Run No.:** 87483

Analytical Run Date: 8/8/2016 **InstrumentID:** GCMS6

Analyst: Don Winston **Column:** Agilent (J&W) DB-EUPAH (20m x 0.18mmI

Calibration ID: 680 **Column ID:** 0.18mm

Column Length: 20m

Cal Comments: PP160801.M

SampID	DF	TestCode	SampType	Batch ID	Analysis Date/Time	Q	Comments
DFTPP-160808	1	PAH_LL_SDOD1	TUNE	R87483	8/8/2016 10:10:00 AM		All samples in this batch run at 10x - detection limit is sufficient and is approved by project managers.
ICV-160808	1	PAH_LL_SDOD1	ICV	R87483	8/8/2016 10:50:00 AM		
LCS-76583	1	PAH_LL_SDOD1	LCS	76583	8/8/2016 11:30:00 AM		
MB-76583	1	PAH_LL_SDOD1	MBLK	76583	8/8/2016 12:10:00 PM		
1607294-66A	10	PAH_LL_SDOD1	SAMP	76583	8/8/2016 12:50:00 PM		
1607294-67A	10	PAH_LL_SDOD1	SAMP	76583	8/8/2016 1:30:00 PM		
1607294-68A	10	PAH_LL_SDOD1	SAMP	76583	8/8/2016 2:12:00 PM		
1607294-69A	10	PAH_LL_SDOD1	SAMP	76583	8/8/2016 2:52:00 PM		
1607294-70A	10	PAH_LL_SDOD1	SAMP	76583	8/8/2016 3:34:00 PM		
1607294-71A	10	PAH_LL_SDOD1	SAMP	76583	8/8/2016 4:16:00 PM		
1607294-72A	10	PAH_LL_SDOD1	SAMP	76583	8/8/2016 4:56:00 PM		
1607294-73A	10	PAH_LL_SDOD1	SAMP	76583	8/8/2016 5:38:00 PM		
1607294-74A	10	PAH_LL_SDOD1	SAMP	76583	8/8/2016 6:17:00 PM		
1607294-75A	10	PAH_LL_SDOD1	SAMP	76583	8/8/2016 6:58:00 PM		
1607314-01A	10	PAH_LL_SDOD1	SAMP	76583	8/8/2016 7:38:00 PM		
1607314-02A	10	PAH_LL_SDOD1	SAMP	76583	8/8/2016 8:18:00 PM		
1607314-03A	10	PAH_LL_SDOD1	SAMP	76583	8/8/2016 8:58:00 PM		
DFTPP2-160808	1	PAH_LL_SDOD1	TUNE	R87483	8/8/2016 9:39:00 PM		
ICV2-160808	1	PAH_LL_SDOD1	ICV	R87483	8/8/2016 10:19:00 PM		
SB-160808	1	PAH_LL_SDOD1	SBLK	76583	8/8/2016 11:41:00 PM		
1607314-04A	10	PAH_LL_SDOD1	SAMP	76583	8/9/2016 12:21:00 AM		
1607314-05A	10	PAH_LL_SDOD1	SAMP	76583	8/9/2016 1:02:00 AM		
1607314-06A	10	PAH_LL_SDOD1	SAMP	76583	8/9/2016 1:43:00 AM		
1607317-01A	10	PAH_LL_SDOD1	SAMP	76583	8/9/2016 2:23:00 AM		
1607317-02A	10	PAH_LL_SDOD1	SAMP	76583	8/9/2016 3:03:00 AM		
1607317-03A	10	PAH_LL_SDOD1	SAMP	76583	8/9/2016 3:43:00 AM		
1607317-04A	10	PAH_LL_SDOD1	SAMP	76583	8/9/2016 4:24:00 AM		
1607314-03AMS	10	PAH_LL_SDOD1	MS	76583	8/9/2016 5:05:00 AM		

Std ID	Std Name	Type	Exp. Date
DFTPP160509	2.5 PPM 525 TUNE STD.	TUNE	05/07/2017
PAHCCV160806	1 PPM PAH CCV STANDARD	CCV	11/04/2016
PAHICV160806	2 PPM PAH ICV	ICV	11/04/2016
SVI160510-3	4000 PPM INTERNAL STANDAR	ALL	07/30/2017

DHL Analytical, Inc.

Run ID: GCMS6_160808A **Run No.:** 87483

1607314-03AMSD	10	PAH_LL_SDOD1	MSD	76583	8/9/2016 5:45:00 AM		
CCV1-160808	1	PAH_LL_SDOD1	CCV	R87483	8/9/2016 6:25:00 AM		

Std ID	Std Name	Type	Exp. Date
DFTPP160509	2.5 PPM 525 TUNE STD.	TUNE	05/07/2017
PAHCCV160806	1 PPM PAH CCV STANDARD	CCV	11/04/2016
PAHICV160806	2 PPM PAH ICV	ICV	11/04/2016
SVI160510-3	4000 PPM INTERNAL STANDAR	ALL	07/30/2017

Sequence Name: C:\HPCHEM\1\SEQUENCE\160808.S
Comment:
Operator: DEW
Data Path: C:\HPCHEM\1\DATA\160808\
Pre-Seq Cmd:
Post-Seq Cmd:

Method Sections To Run
(X) Full Method
( ) Reprocessing Only

On A Barcode Mismatch
(X) Inject Anyway
( ) Don't Inject

Line	Type	Vial	DataFile	Method	Sample Name
1	Sample	1	16080801	DFTPPPAH	DFTPP-160808
2	Sample	2	16080802	PP160801	ICV-160808
3	Sample	3	16080803	PP160801	LCS-76583
4	Sample	4	16080804	PP160801	MB-76583
5	Sample	5	16080805	PP160801	1607294-66A
6	Sample	6	16080806	PP160801	1607294-67A
7	Sample	7	16080807	PP160801	1607294-68A
8	Sample	8	16080808	PP160801	1607294-69A
9	Sample	9	16080809	PP160801	1607294-70A
10	Sample	10	16080810	PP160801	1607294-71A
11	Sample	11	16080811	PP160801	1607294-72A
12	Sample	12	16080812	PP160801	1607294-73A
13	Sample	13	16080813	PP160801	1607294-74A
14	Sample	14	16080814	PP160801	1607294-75A
15	Sample	15	16080815	PP160801	1607314-01A
16	Sample	16	16080816	PP160801	1607314-02A
17	Sample	17	16080817	PP160801	1607314-03A
18	Sample	18	16080818	DFTPPPAH	DFTPP2-160808
19	Sample	19	16080819	PP160801	ICV2-160808
20	Sample	20	16080820	PP160801	SBLK
21	Sample	21	16080821	PP160801	SB-160808
22	Sample	22	16080822	PP160801	1607314-04A
23	Sample	23	16080823	PP160801	1607314-05A
24	Sample	24	16080824	PP160801	1607314-06A
25	Sample	25	16080825	PP160801	1607317-01A
26	Sample	26	16080826	PP160801	1607317-02A
27	Sample	27	16080827	PP160801	1607317-03A
28	Sample	28	16080828	PP160801	1607317-04A
29	Sample	29	16080829	PP160801	1607314-03AMS
30	Sample	30	16080830	PP160801	1607314-03AMSD
31	Sample	31	16080831	PP160801	CCV1-160808

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **8/1/2016 9:55:54 AM**
Digestion:
Prep End Date: **8/1/2016 5:00:00 PM**

Prep Batch **76583** Prep Code: **3550_PAHDOD** Technician: **Lauren Garcia**

Prep Factor Units: **mL/g**

Equipment List

Turbo-Vap # 1,2,3
Balance # 25
Sonicators # 1,2,3,4

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607294-66A	Soil		10.2	10	0.980	1 of 1	
1607294-67A	Soil		10.32	10	0.969	1 of 1	
1607294-68A	Soil		10.05	10	0.995	1 of 1	
1607294-69A	Soil		10.01	10	0.999	1 of 1	
1607294-70A	Soil		10.16	10	0.984	1 of 1	
1607294-71A	Soil		10.12	10	0.988	1 of 1	
1607294-72A	Soil		10.22	10	0.978	1 of 1	
1607294-73A	Soil		10.32	10	0.969	1 of 1	
1607294-74A	Soil		10.38	10	0.963	1 of 1	
1607294-75A	Soil		10.94	10	0.914	1 of 1	
1607314-01A	Soil		10.08	10	0.992	1 of 1	
1607314-02A	Soil		10.29	10	0.972	1 of 1	
1607314-03A	Soil		10.06	10	0.994	1 of 3	
1607314-03AMS	Soil		10.25	10	0.976	1 of	
1607314-03AMSD	Soil		10.01	10	0.999	1 of	
1607314-04A	Soil		10.08	10	0.992	1 of 1	
1607314-05A	Soil		10.09	10	0.991	1 of 1	
1607314-06A	Soil		10.18	10	0.982	1 of 1	
1607317-01A	Soil		10.15	10	0.985	1 of 1	
1607317-02A	Soil		10.17	10	0.983	1 of 1	
1607317-03A	Soil		~~10.51~~ 10.28	10	0.951	1 of 1	jw 8/15/2016
1607317-04A	Soil		~~10.28~~ 10.51	10	0.973	1 of 1	jw 8/15/2016
LCS-76583	Soil		10	10	1.000	of	
MB-76583	Soil		10	10	1.000	of	

Number	Reagent Name	Amt	Units	Exp. Da
10394	Purified Sodium Sulfate	10	g	05/23/2026
10419	Methylene Chloride	8	ml	05/31/2026
10535	Whatman 41 Filter	1	filter	07/08/2026
10591	1:1 MeCl2/Acetone	120	ml	07/26/2026

Spk ID	Spike Name	SampType	Amt (mL or g)	Exp. Date
PAHPREP160727	200 PPM PAH Spike Mix	LCS/MS/MSD	0.05	10/25/2016
SVPREP160727	40 PPM Surrogate Standard	ALL	0.25	10/25/2016

REVIEWED BY
By Janice Whitt at 4:05:20 PM, 8/15/2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **8/1/2016 9:55:54 AM**
Digestion:
Prep End Date: 8/1/2016 5:00PM

Prep Batch **76583** Prep Code: **3550_PAHDOD** Technician: **ADMIN**

Prep Factor Units: **mL/g**

Equipment List
Turbo-Vap # 1,2,3
Balance # 25
Sonicators # 1,2,3,4

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607294-66A	Soil		10.20	10	1.000	1 of 1	
1607294-67A	Soil		10.32	10	1.000	1 of 1	
1607294-68A	Soil		10.05	10	1.000	1 of 1	
1607294-69A	Soil		10.01	10	1.000	1 of 1	
1607294-70A	Soil		10.16	10	1.000	1 of 1	
1607294-71A	Soil		10.17	10	1.000	1 of 1	
1607294-72A	Soil		10.22	10	1.000	1 of 1	
1607294-73A	Soil		10.37	10	1.000	1 of 1	
1607294-74A	Soil		10.38	10	1.000	1 of 1	
1607294-75A	Soil		10.94	10	1.000	1 of 1	
1607314-01A	Soil		10.08	10	1.000	1 of 1	
1607314-02A	Soil		10.29	10	1.000	1 of 1	
1607314-03A	Soil		10.06	10	1.000	1 of 3	
1607314-03AMS	Soil		10.25	10	1.000	1 of	
1607314-03AMSD	Soil		10.01	10	1.000	1 of	
1607314-04A	Soil		10.08	10	1.000	1 of 1	
1607314-05A	Soil		10.09	10	1.000	1 of 1	
1607314-06A	Soil		10.18	10	1.000	1 of 1	
1607317-01A	Soil		10.15	10	1.000	1 of 1	
1607317-02A	Soil		10.17	10	1.000	1 of 1	
1607317-03A	Soil		10.29	10	1.000	1 of 1	
1607317-04A	Soil		10.51	10	1.000	1 of 1	
LCS-76583	Soil		10	10	1.000	of	
MB-76583	Soil		10	10	1.000	of	

Number	Reagent Name	Amt	Units	Exp. Da
10394	Purified Sodium Sulfate	10	g	05/23/2026
10419	Methylene Chloride	8	ml	05/31/2026
10535	Whatman 41 Filter	1	filter	07/08/2026
10591	1:1 MeCl2/Acetone	120	ml	07/26/2026

Spk ID	Spike Name	SampType	Amt (mL or g)	Exp. Date
PAHPREP160727	200 PPM PAH Spike Mix	LCS/MS/MSD	0.05	10/25/2016
SVPREP160727	40 PPM Surrogate Standard	ALL	0.25	10/25/2016

REVIEWED BY
By Janice Whitt at 4:05:18 PM, 8/15/2016

AR 8/1/16

8/4/16

8/1/16

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **7/26/2016 5:30:00 PM**
Digestion: **Start: 7/26/2016 6:40:00 PM / Stop: 7/29/2016 1:40:00 PM**
Prep End Date: **7/29/2016 3:00:00 PM**

Prep Batch **76518** Prep Code: **ISM2MM_PREP** Technician: **Jennifer Barker**

Prep Factor Units: **mL/**

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607294-66A	Soil		0	0	#Num!	1 of 1	
	Sieve only hard clay						
1607294-67A	Soil		0	0	#Num!	1 of 1	
	Sieve only hard clay						
1607294-68A	Soil		0	0	#Num!	1 of 1	
	SS						
1607294-69A	Soil		0	0	#Num!	1 of 1	
	SS						
1607294-70A	Soil		0	0	#Num!	1 of 1	
	Sieve only hard clay						
1607294-71A	Soil		0	0	#Num!	1 of 1	
	Sieve only hard clay						
1607294-72A	Soil		0	0	#Num!	1 of 1	
	SS						
1607294-73A	Soil		0	0	#Num!	1 of 1	
	SS						
1607294-74A	Soil		0	0	#Num!	1 of 1	
	SS						
1607294-75A	Soil		0	0	#Num!	1 of 1	
	Sieve only hard clay						

REVIEWED BY
By Janice Whitt at 4:05:57 PM, 8/15/2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **7/28/2016 12:00:00 PM**
Digestion: **Start: 7/28/2016 12:10:00 PM / Stop: 7/29/2016 1:30:00 PM**
Prep End Date: **7/29/2016 3:00:00 PM**

Prep Batch **76539** Prep Code: **ISM2MM_PREP** Technician: **Jennifer Barker**

Prep Factor Units: **mL/**

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607314-01A SS	Soil		0	0	#Num!	1 of 1	
1607314-02A SS	Soil		0	0	#Num!	1 of 1	
1607314-03A SS MS/MSD	Soil		0	0	#Num!	of 3	
1607314-04A SS	Soil		0	0	#Num!	1 of 1	
1607314-05A SS	Soil		0	0	#Num!	1 of 1	
1607314-06A SS	Soil		0	0	#Num!	1 of 1	

REVIEWED BY
By Janice Whitt at 4:06:00 PM, 8/15/2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **7/28/2016 4:31:01 PM**
Digestion: **Start: 7/28/2016 4:45:00 PM / Stop: 8/1/2016 10:00:00 AM**
Prep End Date: **8/2/2016 10:00:00 AM**

Prep Batch **76551** Prep Code: **ISM2MM_PREP** Technician: **Jennifer Barker**

Prep Factor Units: **mL/**

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607317-01A	Soil		0	0	#Num!	1 of 1	
SS							
1607317-02A	Soil		0	0	#Num!	1 of 1	
SS							
1607317-03A	Soil		0	0	#Num!	1 of 1	
Sieve only hard clay							
1607317-04A	Soil		0	0	#Num!	1 of 1	
Sieve only hard clay							
1607317-05A	Soil		0	0	#Num!	1 of 1	
SS							
1607317-06A	Soil		0	0	#Num!	1 of 1	
SS							
1607317-07A	Soil		0	0	#Num!	1 of 1	
Sieve only hard clay							
1607317-08A	Soil		0	0	#Num!	1 of 1	
Sieve only hard clay							
1607317-09A	Soil		0	0	#Num!	of 3	
SS MS/MSD							
1607317-10A	Soil		0	0	#Num!	1 of 1	
SS							
1607317-11A	Soil		0	0	#Num!	1 of 1	
Sieve only hard clay							
1607317-12A	Soil		0	0	#Num!	1 of 1	
Sieve only hard clay							
1607317-14A	Soil		0	0	#Num!	1 of 1	
SS							

REVIEWED BY
By Janice Whitt at 4:06:04 PM, 8/15/2016

Prep Start Date: **7/28/2016 4:31:01 PM**
Digestion: **Start: 7/28/2016 4:45:00 PM / Stop: 8/1/2016 10:00:00 AM**
Prep End Date: **8/2/2016 10:00:00 AM**

Prep Batch **76551** Prep Code: **ISM2MM_PREP** Technician: **Jennifer Barker**

Prep Factor Units: **mL/**

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607317-15A SS	Soil		0	0	#Num!	1 of 1	
1607317-16A SS	Soil		0	0	#Num!	1 of 1	
1607317-17A SS	Soil		0	0	#Num!	1 of 1	
1607317-18A SS	Soil		0	0	#Num!	1 of 1	
1607317-19A SS	Soil		0	0	#Num!	1 of 1	
1607317-20A SS	Soil		0	0	#Num!	1 of 1	
1607317-21A SS	Soil		0	0	#Num!	1 of 1	
1607317-22A SS	Soil		0	0	#Num!	1 of 1	
1607317-23A SS	Soil		0	0	#Num!	1 of 1	
1607317-24A SS	Soil		0	0	#Num!	1 of 1	
1607317-25A SS	Soil		0	0	#Num!	1 of 1	
1607317-27A SS MS/MSD	Soil		0	0	#Num!	of 3	
1607317-28A SS	Soil		0	0	#Num!	1 of 1	

REVIEWED BY
By Janice Whitt at 4:06:10 PM, 8/15/2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **7/28/2016 4:31:01 PM**
Digestion: **Start: 7/28/2016 4:45:00 PM / Stop: 8/1/2016 10:00:00 AM**
Prep End Date: **8/2/2016 10:00:00 AM**

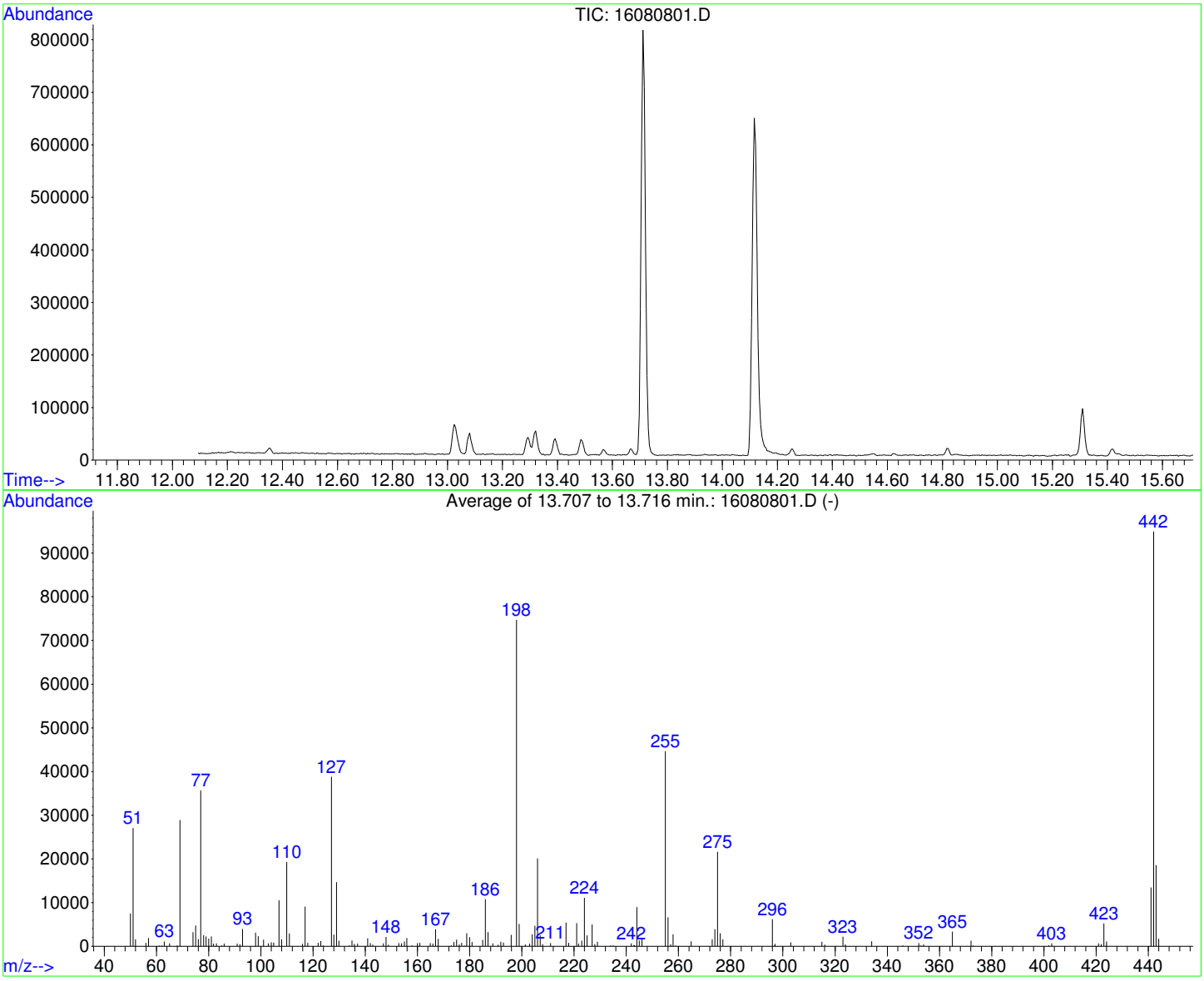
Prep Batch **76551** Prep Code: **ISM2MM_PREP** Technician: **Jennifer Barker**

Prep Factor Units: **mL/**

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607317-29A	Soil		0	0	#Num!	1 of 1	
SS							
1607317-30A	Soil		0	0	#Num!	1 of 1	
Sieve only hard clay							
1607317-31A	Soil		0	0	#Num!	1 of 1	
SS							
1607317-32A	Soil		0	0	#Num!	1 of 1	
SS							
1607317-33A	Soil		0	0	#Num!	1 of 1	
SS							
1607317-34A	Soil		0	0	#Num!	1 of 1	
Sieve only hard clay							
1607317-35A	Soil		0	0	#Num!	1 of 1	
SS							
1607317-36A	Soil		0	0	#Num!	1 of 1	
SS							
1607317-37A	Soil		0	0	#Num!	1 of 1	
SS							
1607317-38A	Soil		0	0	#Num!	1 of 1	
Sieve only hard clay							

REVIEWED BY
By Janice Whitt at 4:06:13 PM, 8/15/2016

Data File : C:\HPCHEM\1\DATA\160808\16080801.D Vial: 1
Acq On : 8 Aug 2016 10:10 am Operator: DEW
Sample : DFTPP-160808 Inst : GC/MS #6
Misc : TUNE Multiplr: 1.00
MS Integration Params: RTEINT.P
Method : C:\HPCHEM\1\METHODS\DFTPPPAH.M (RTE Integrator)
Title : PAH Calibration

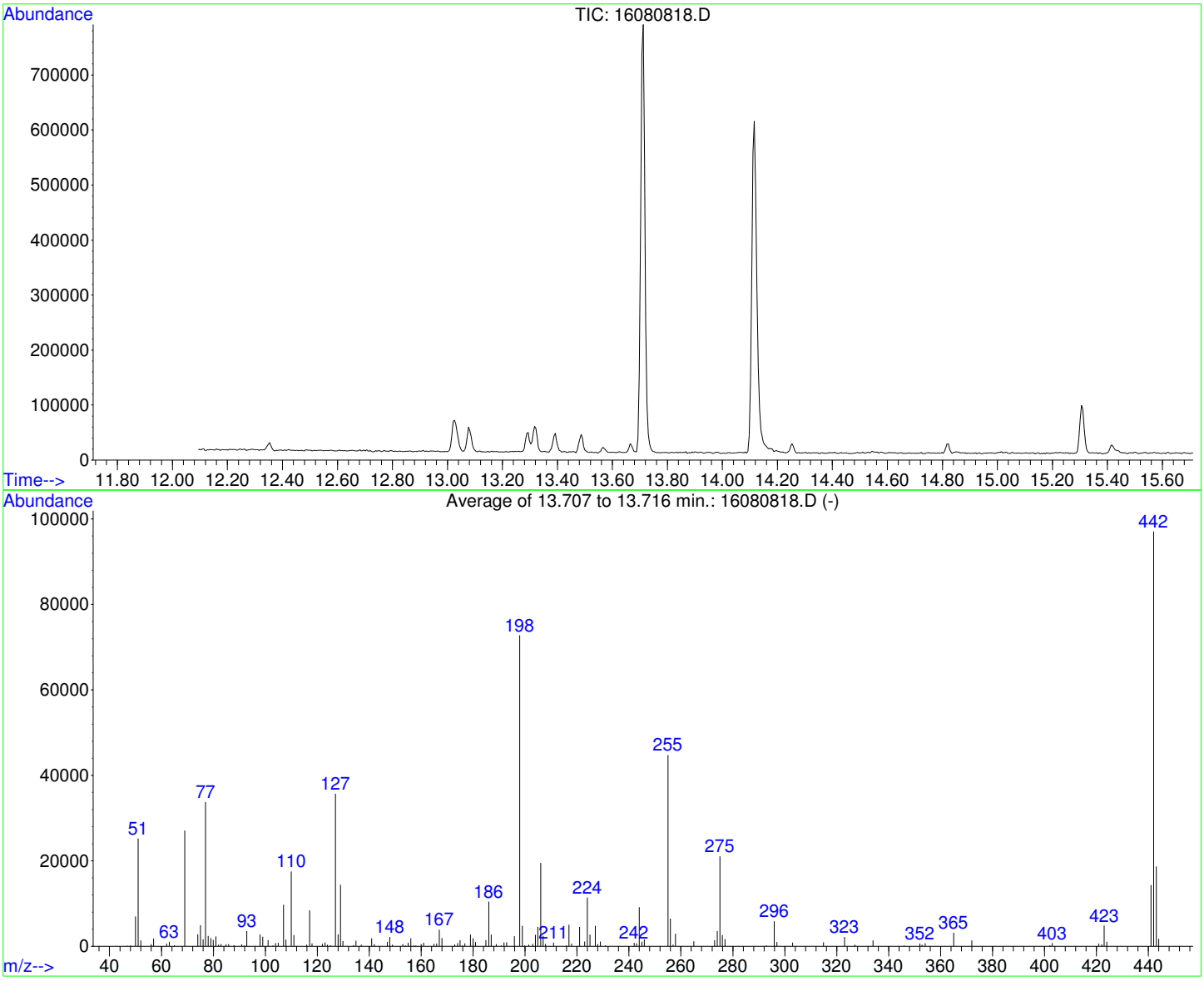


AutoFind: Scans 344, 345, 346; Background Corrected with Scan 338

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	10	80	36.2	27046	PASS
68	69	0.00	2	0.6	171	PASS
69	198	0.00	100	38.6	28883	PASS
70	69	0.00	2	0.0	0	PASS
127	198	10	80	51.9	38821	PASS
197	198	0.00	2	0.0	0	PASS
198	198	100	100	100.0	74736	PASS
199	198	5	9	6.8	5110	PASS
275	198	10	60	29.0	21659	PASS
365	198	1	200	4.5	3327	PASS
441	442	0.01	24	14.2	13444	PASS
442	198	50	400	127.1	94960	PASS
443	442	15	24	19.6	18609	PASS

REVIEWED BY
By Janice Whitt at 4:06:16 PM, 8/15/2016

Data File : C:\HPCHEM\1\DATA\160808\16080818.D Vial: 18
Acq On : 8 Aug 2016 9:39 pm Operator: DEW
Sample : DFTPP2-160808 Inst : GC/MS #6
Misc : TUNE Multiplr: 1.00
MS Integration Params: RTEINT.P
Method : C:\HPCHEM\1\METHODS\DFTPPPAH.M (RTE Integrator)
Title : PAH Calibration



AutoFind: Scans 344, 345, 346; Background Corrected with Scan 338

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	10	80	34.7	25235	PASS
68	69	0.00	2	0.0	0	PASS
69	198	0.00	100	37.3	27128	PASS
70	69	0.00	2	0.0	0	PASS
127	198	10	80	49.0	35683	PASS
197	198	0.00	2	0.0	0	PASS
198	198	100	100	100.0	72776	PASS
199	198	5	9	6.6	4772	PASS
275	198	10	60	28.9	21045	PASS
365	198	1	200	4.3	3154	PASS
441	442	0.01	24	14.7	14314	PASS
442	198	50	400	133.4	97088	PASS
443	442	15	24	19.2	18669	PASS

REVIEWED BY
By Janice Whitt at 4:06:21 PM, 8/15/2016

Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160808\16080802.D Vial: 2
Acq On : 8 Aug 2016 10:50 am Operator: DEW
Sample : ICV-160808 Inst : GC/MS #6
Misc : ICV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 9 9:17 2016 Quant Results File: PP160801.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration
DataAcq Meth : PP160801

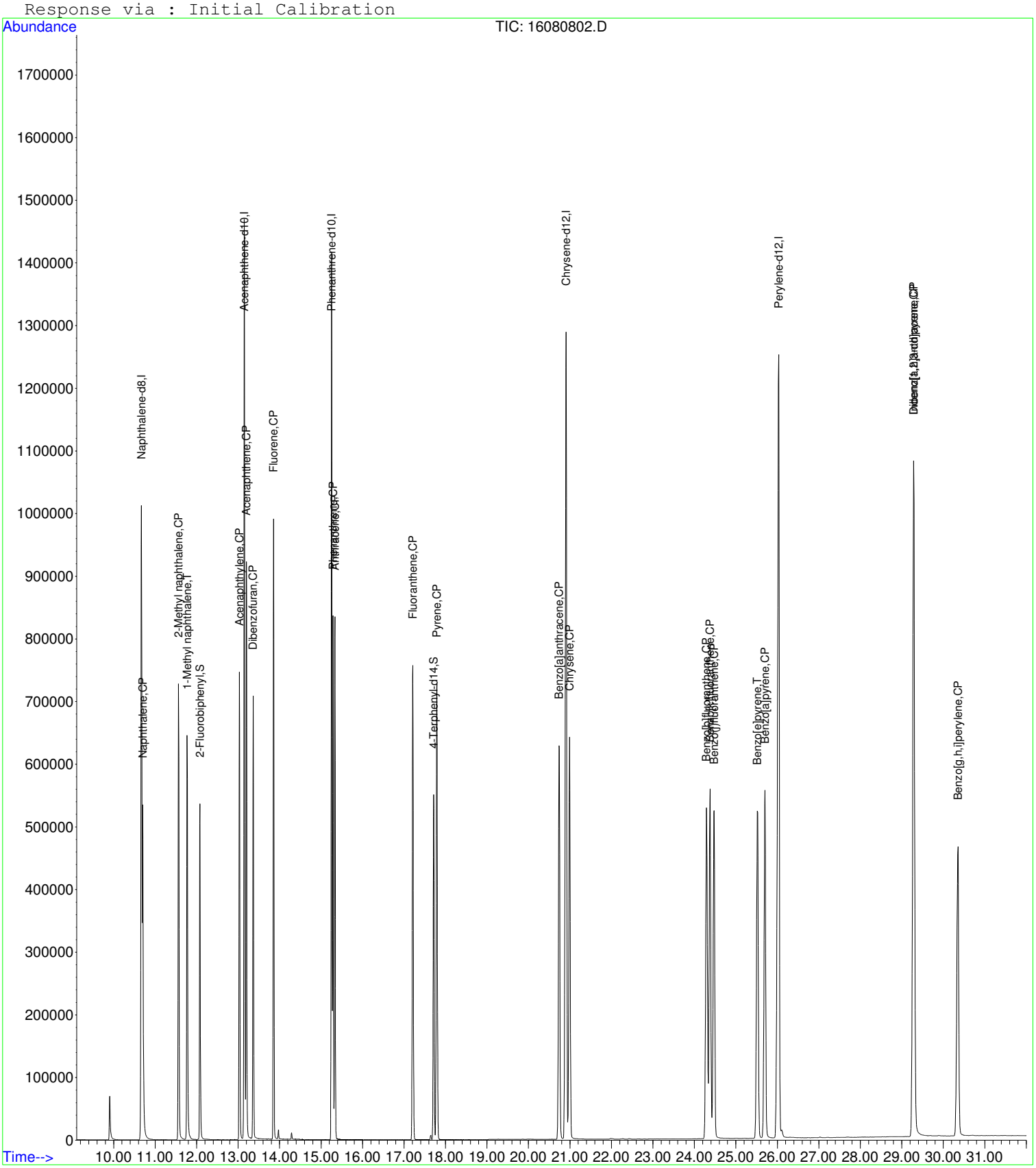
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.67	136	1528416	4000.00	ug/kg	109
5) Acenaphthene-d10	13.15	164	867911	4000.00	ug/kg	145
11) Phenanthrene-d10	15.25	188	1700838	4000.00	ug/kg	107
17) Chrysene-d12	20.91	240	2292711	4000.00	ug/kg	125
20) Perylene-d12	26.03	264	2545465	4000.00	ug/kg	132
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.08	172	535199	1767.86	ug/kg	-0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery = 44.20%			
16) 4-Terphenyl-d14	17.71	244	770136	1918.73	ug/kg	-0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery = 47.97%			
Target Compounds						Qvalue
2) Naphthalene	10.70	128	636964	1831.66	ug/kg	100
3) 2-Methyl naphthalene	11.56	142	459964	2040.30	ug/kg	96
4) 1-Methyl naphthalene	11.77	142	413947	2072.97	ug/kg	97
6) Dibenzofuran	13.36	168	642919	1830.47	ug/kg	100
8) Acenaphthylene	13.03	152	727996	1894.13	ug/kg	100
9) Acenaphthene	13.20	154	420683	1889.90	ug/kg	100
10) Fluorene	13.85	166	532773	1904.06	ug/kg	99
12) Phenanthrene	15.29	178	735487	1823.94	ug/kg	100
13) Anthracene	15.33	178	768485	1811.16	ug/kg	100
14) Fluoranthene	17.21	202	849706	1778.10	ug/kg	100
15) Pyrene	17.79	202	866163	1787.55	ug/kg	100
18) Benzo[a]anthracene	20.74	228	983644	1903.47	ug/kg	100
19) Chrysene	20.99	228	923250	1857.11	ug/kg	100
21) Benzo[b]fluoranthene	24.29	252	1128387	1920.22	ug/kg	100
22) Benzo[k]fluoranthene	24.38	252	1055568	1958.03	ug/kg	99
23) Benzo(j)fluoranthene	24.48	252	998328	1926.99	ug/kg	99
24) Benzo[e]pyrene	25.52	252	1086157	1904.67	ug/kg	99
25) Benzo[a]pyrene	25.70	252	1081291	1904.42	ug/kg	99
26) Dibenz[a,h]anthracene	29.29	278	1060435	1930.02	ug/kg	100
27) Indeno[1,2,3-cd]pyrene	29.29	276	1242374	1905.45	ug/kg	98
28) Benzo[g,h,i]perylene	30.36	276	999942	1831.08	ug/kg	100

(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160808\16080802.D Vial: 2
Acq On : 8 Aug 2016 10:50 am Operator: DEW
Sample : ICV-160808 Inst : GC/MS #6
Misc : ICV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 9 9:17 2016 Quant Results File: PP160801.RES

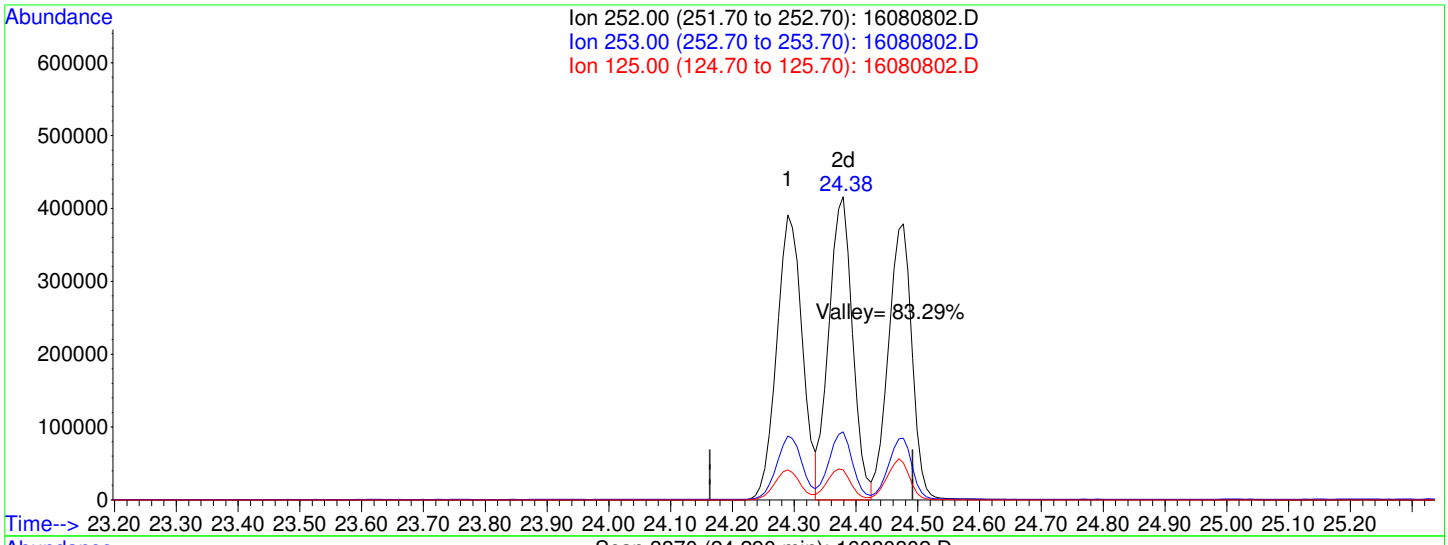
Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration

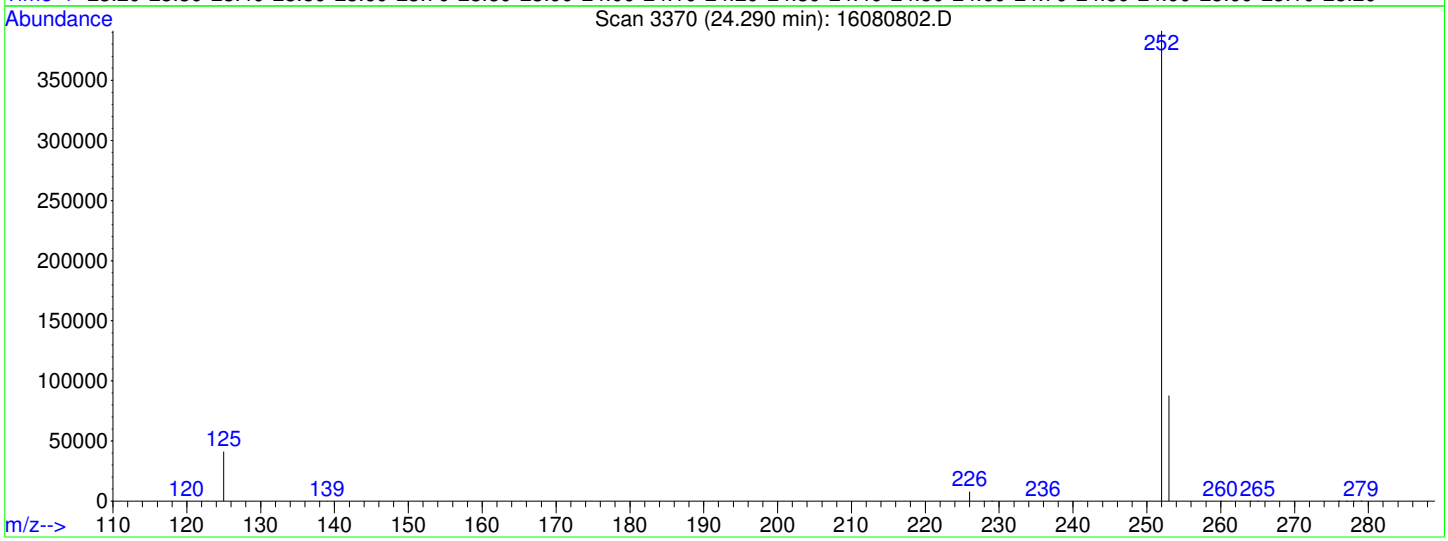


Quantitation Report (Qedit)

Data File : C:\HPCHEM\1\DATA\160808\16080802.D Vial: 2
Acq On : 8 Aug 2016 10:50 am Operator: DEW
Sample : ICV-160808 Inst : GC/MS #6
Misc : ICV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 8 11:22 2016 Quant Results File: temp.res

Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Multiple Level Calibration





TIC: 16080802.D

(21) Benzo[b]fluoranthene (CP)

24.29min 1920.22ug/kg

response 1128387

Ion	Exp%	Act%
252.00	100	100
253.00	22.00	22.23
125.00	10.60	10.56
0.00	0.00	0.00

Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160808\16080803.D Vial: 3
Acq On : 8 Aug 2016 11:30 am Operator: DEW
Sample : LCS-76583 Inst : GC/MS #6
Misc : LCS Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 9 9:17 2016 Quant Results File: PP160801.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration
DataAcq Meth : PP160801

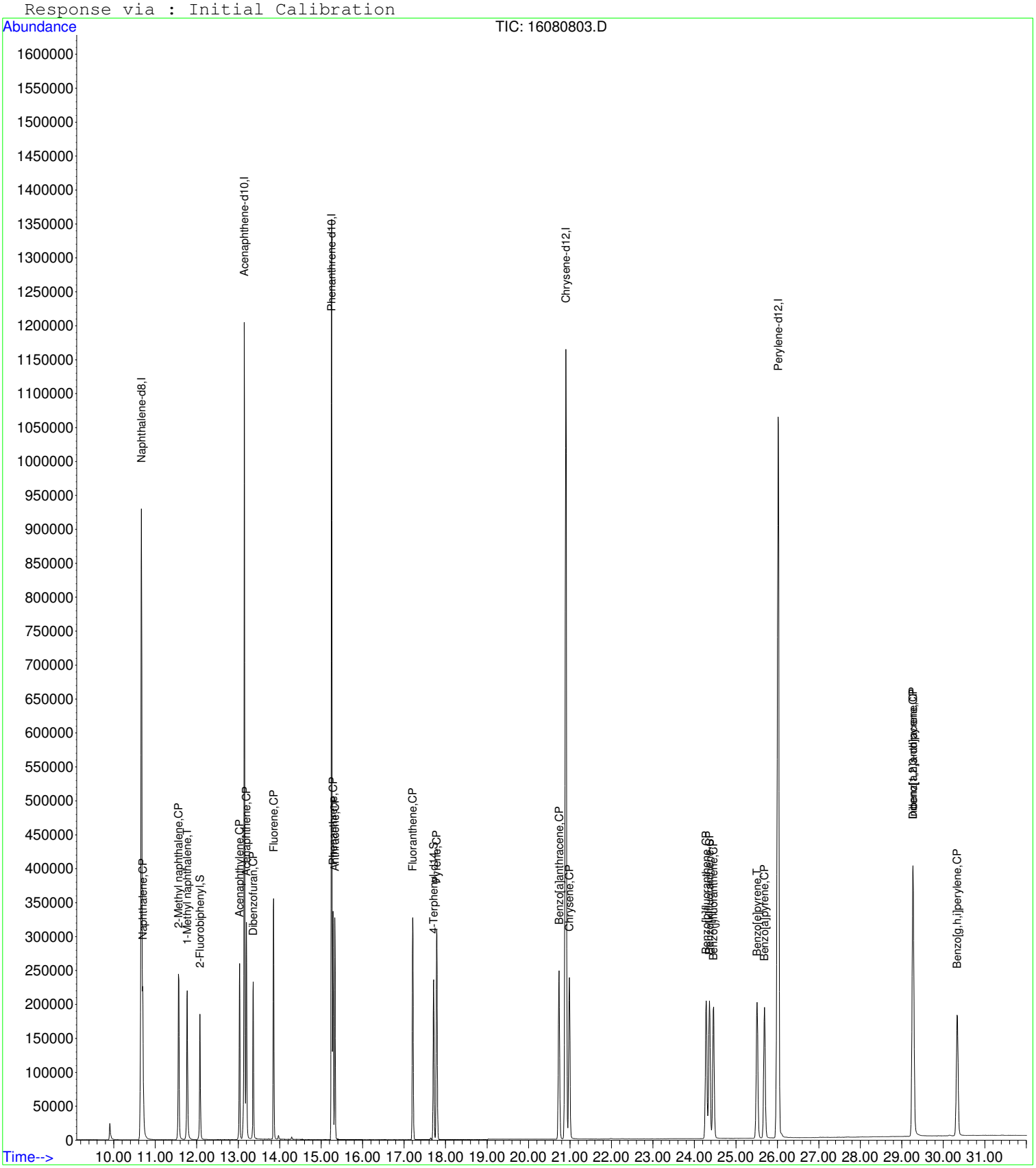
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.67	136	1541703	4000.00	ug/kg	110
5) Acenaphthene-d10	13.15	164	748399	4000.00	ug/kg	125
11) Phenanthrene-d10	15.25	188	1565255	4000.00	ug/kg	98
17) Chrysene-d12	20.90	240	2012941	4000.00	ug/kg	110
20) Perylene-d12	26.02	264	2116064	4000.00	ug/kg	110
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.08	172	198190	759.20	ug/kg	-0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery = 18.98%#			
16) 4-Terphenyl-d14	17.71	244	330004	893.39	ug/kg	-0.03
Spiked Amount 4000.000	Range 40 - 140		Recovery = 22.33%#			
Target Compounds						Qvalue
2) Naphthalene	10.70	128	259375	739.43	ug/kg	100
3) 2-Methyl naphthalene	11.57	142	178872	786.60	ug/kg	100
4) 1-Methyl naphthalene	11.77	142	161514	801.86	ug/kg	98
6) Dibenzofuran	13.36	168	231734	765.13	ug/kg	99
8) Acenaphthylene	13.03	152	263467	794.96	ug/kg	100
9) Acenaphthene	13.20	154	154390	804.35	ug/kg	99
10) Fluorene	13.85	166	196218	813.24	ug/kg	99
12) Phenanthrene	15.29	178	298133	803.39	ug/kg	100
13) Anthracene	15.33	178	299990	768.26	ug/kg	100
14) Fluoranthene	17.21	202	359645	817.78	ug/kg	99
15) Pyrene	17.79	202	363158	814.39	ug/kg	99
18) Benzo[a]anthracene	20.74	228	376818	830.53	ug/kg	99
19) Chrysene	20.98	228	347292	795.67	ug/kg	99
21) Benzo[b]fluoranthene	24.28	252	411640	842.65	ug/kg	100
22) Benzo[k]fluoranthene	24.36	252	378685	844.99	ug/kg	99
23) Benzo(j)fluoranthene	24.46	252	370595	860.48	ug/kg	99
24) Benzo[e]pyrene	25.51	252	403190	850.50	ug/kg	99
25) Benzo[a]pyrene	25.69	252	379569	804.17	ug/kg	99
26) Dibenz[a,h]anthracene	29.26	278	386684	846.59	ug/kg	99
27) Indeno[1,2,3-cd]pyrene	29.27	276	462497	853.28	ug/kg	99
28) Benzo[g,h,i]perylene	30.34	276	367824	810.23	ug/kg	98

(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160808\16080803.D Vial: 3
Acq On : 8 Aug 2016 11:30 am Operator: DEW
Sample : LCS-76583 Inst : GC/MS #6
Misc : LCS Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 9 9:17 2016 Quant Results File: PP160801.RES

Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160808\16080804.D Vial: 4
Acq On : 8 Aug 2016 12:10 pm Operator: DEW
Sample : MB-76583 Inst : GC/MS #6
Misc : MBLK Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 9 9:17 2016 Quant Results File: PP160801.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration
DataAcq Meth : PP160801

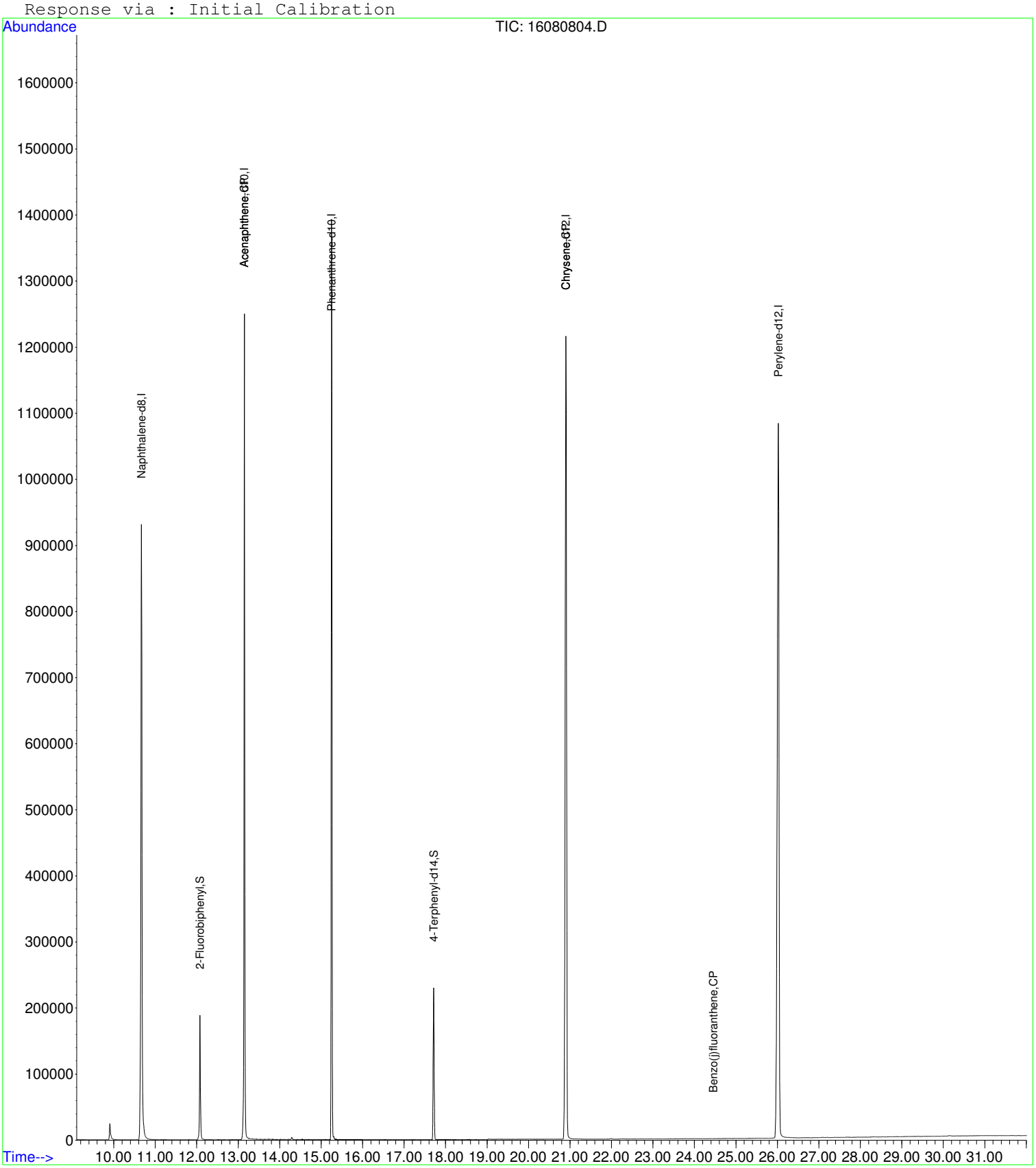
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.67	136	1629876	4000.00	ug/kg	116
5) Acenaphthene-d10	13.15	164	791521	4000.00	ug/kg	132
11) Phenanthrene-d10	15.25	188	1625719	4000.00	ug/kg	102
17) Chrysene-d12	20.90	240	2108304	4000.00	ug/kg	115
20) Perylene-d12	26.03	264	2196820	4000.00	ug/kg	114
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.08	172	202147	732.17	ug/kg	-0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery = 18.30%#			
16) 4-Terphenyl-d14	17.71	244	322099	839.56	ug/kg	-0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery = 20.99%#			
Target Compounds						Qvalue
9) Acenaphthene	13.15	154	2662	~~13.11 ug/kg#~~		~~12~~
19) Chrysene	20.90	228	4504	~~9.85 ug/kg~~		~~72~~
23) Benzo(j)fluoranthene	24.47	252	62	0.14	ug/kg	91

(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160808\16080804.D Vial: 4
Acq On : 8 Aug 2016 12:10 pm Operator: DEW
Sample : MB-76583 Inst : GC/MS #6
Misc : MBLK Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 9 9:17 2016 Quant Results File: PP160801.RES

Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160808\16080815.D Vial: 15
Acq On : 8 Aug 2016 7:38 pm Operator: DEW
Sample : 1607314-01A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 9 9:03 2016 Quant Results File: PP160801.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration
DataAcq Meth : PP160801

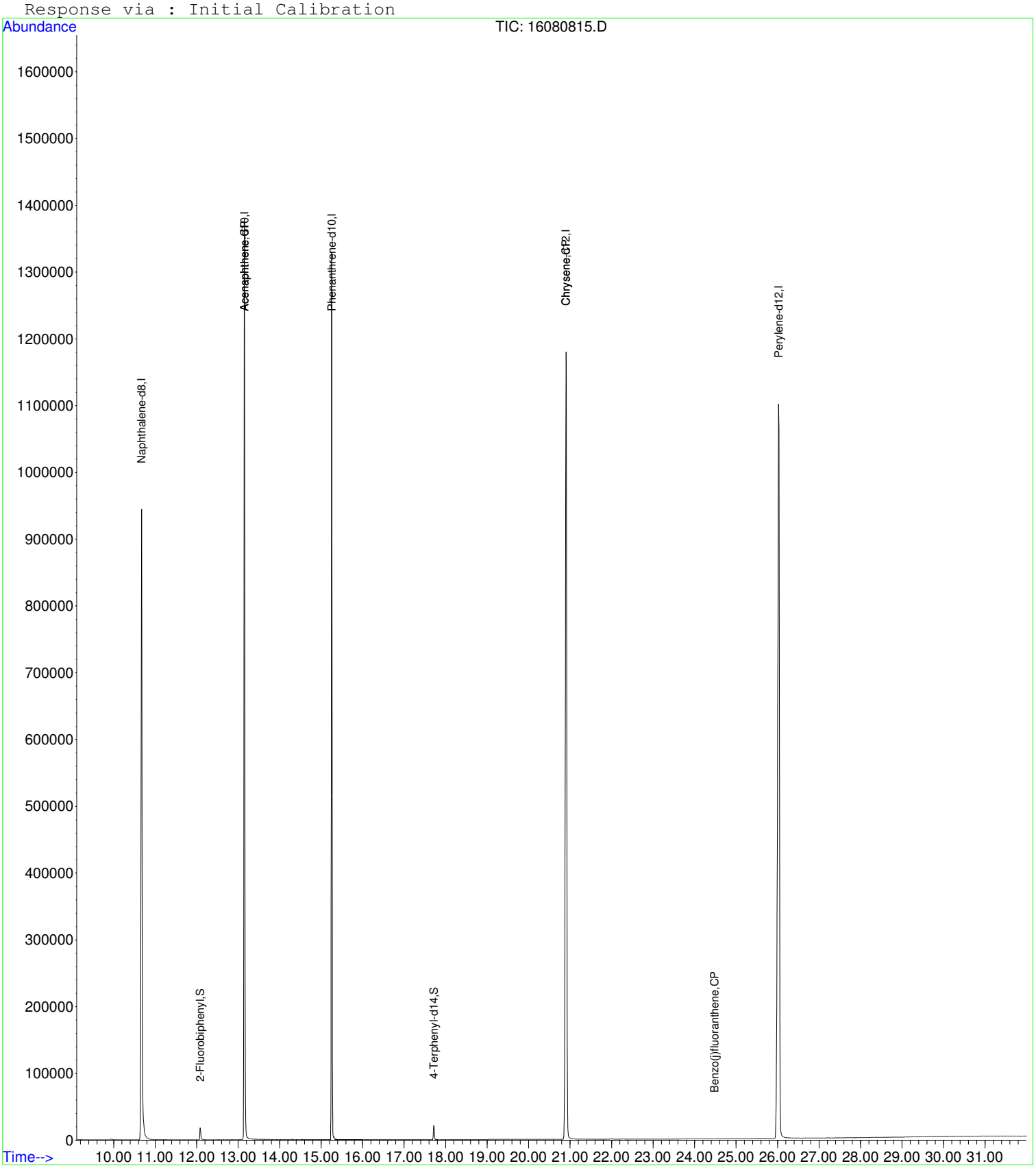
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.67	136	1489851	4000.00	ug/kg	106
5) Acenaphthene-d10	13.15	164	814321	4000.00	ug/kg	136
11) Phenanthrene-d10	15.26	188	1552462	4000.00	ug/kg	98
17) Chrysene-d12	20.90	240	2086210	4000.00	ug/kg	114
20) Perylene-d12	26.03	264	2245754	4000.00	ug/kg	116
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.09	172	21613	76.09	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.90%#		
16) 4-Terphenyl-d14	17.72	244	31295	85.42	ug/kg	-0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.14%#		
Target Compounds						Qvalue
9) Acenaphthene	13.15	154	2747	13.15	ug/kg#	10
19) Chrysene	20.90	228	4546	10.05	ug/kg	73
23) Benzo(j)fluoranthene	24.48	252	118	0.26	ug/kg#	40

(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160808\16080815.D Vial: 15
Acq On : 8 Aug 2016 7:38 pm Operator: DEW
Sample : 1607314-01A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 9 9:03 2016 Quant Results File: PP160801.RES

Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160808\16080816.D Vial: 16
Acq On : 8 Aug 2016 8:18 pm Operator: DEW
Sample : 1607314-02A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 9 9:03 2016 Quant Results File: PP160801.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration
DataAcq Meth : PP160801

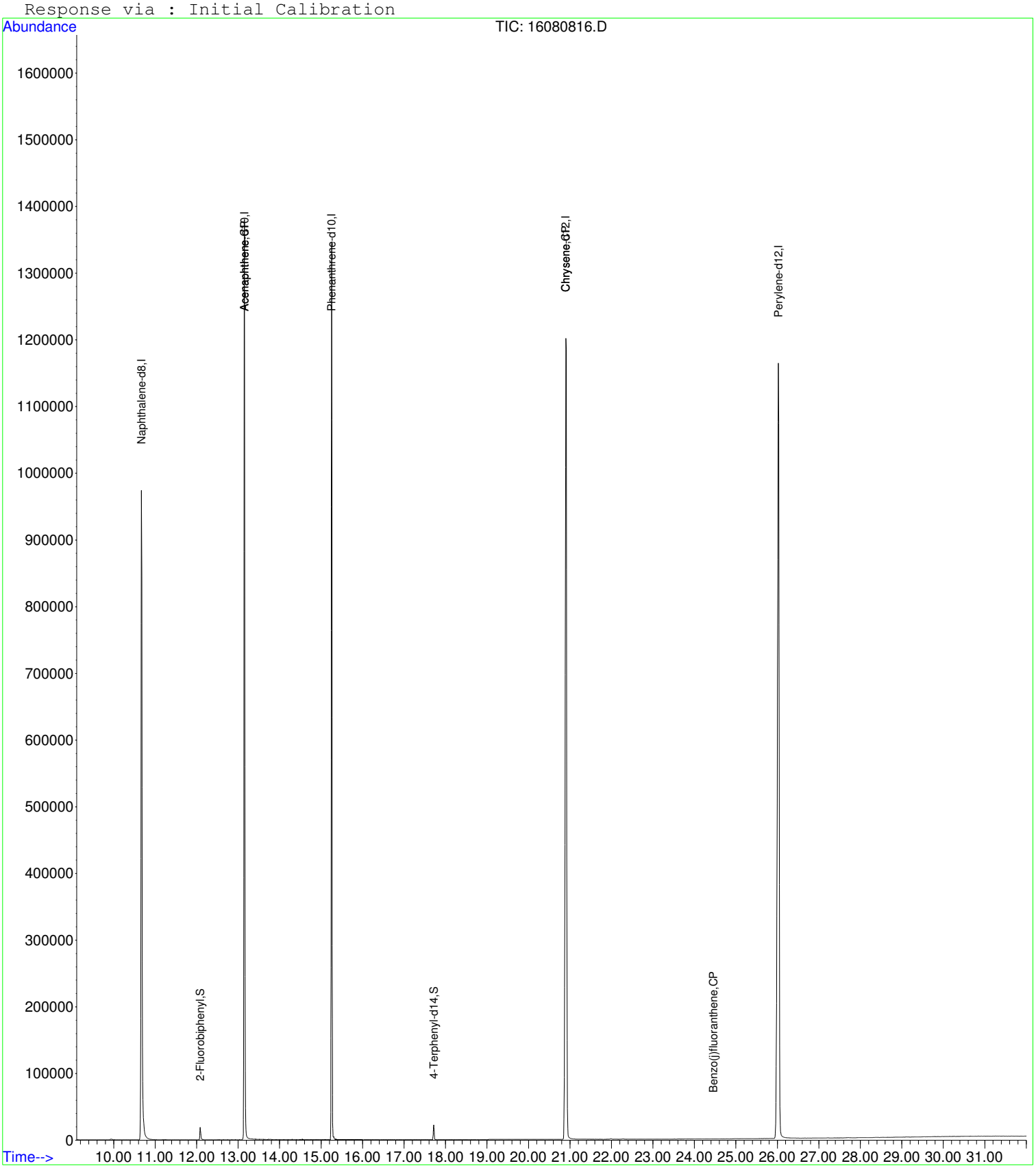
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.67	136	1546612	4000.00	ug/kg	110
5) Acenaphthene-d10	13.15	164	827037	4000.00	ug/kg	138
11) Phenanthrene-d10	15.26	188	1572531	4000.00	ug/kg	99
17) Chrysene-d12	20.90	240	2131216	4000.00	ug/kg	116
20) Perylene-d12	26.02	264	2275406	4000.00	ug/kg	118
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.09	172	21664	75.10	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.88%#		
16) 4-Terphenyl-d14	17.72	244	31479	84.83	ug/kg	-0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.12%#		
Target Compounds						Qvalue
9) Acenaphthene	13.15	154	2837	13.37	ug/kg#	11
19) Chrysene	20.90	228	4575	9.90	ug/kg	68
23) Benzo(j)fluoranthene	24.45	252	17	0.04	ug/kg#	1

(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160808\16080816.D Vial: 16
Acq On : 8 Aug 2016 8:18 pm Operator: DEW
Sample : 1607314-02A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 9 9:03 2016 Quant Results File: PP160801.RES

Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160808\16080817.D Vial: 17
Acq On : 8 Aug 2016 8:58 pm Operator: DEW
Sample : 1607314-03A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 9 15:04 2016 Quant Results File: PP160801.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration
DataAcq Meth : PP160801

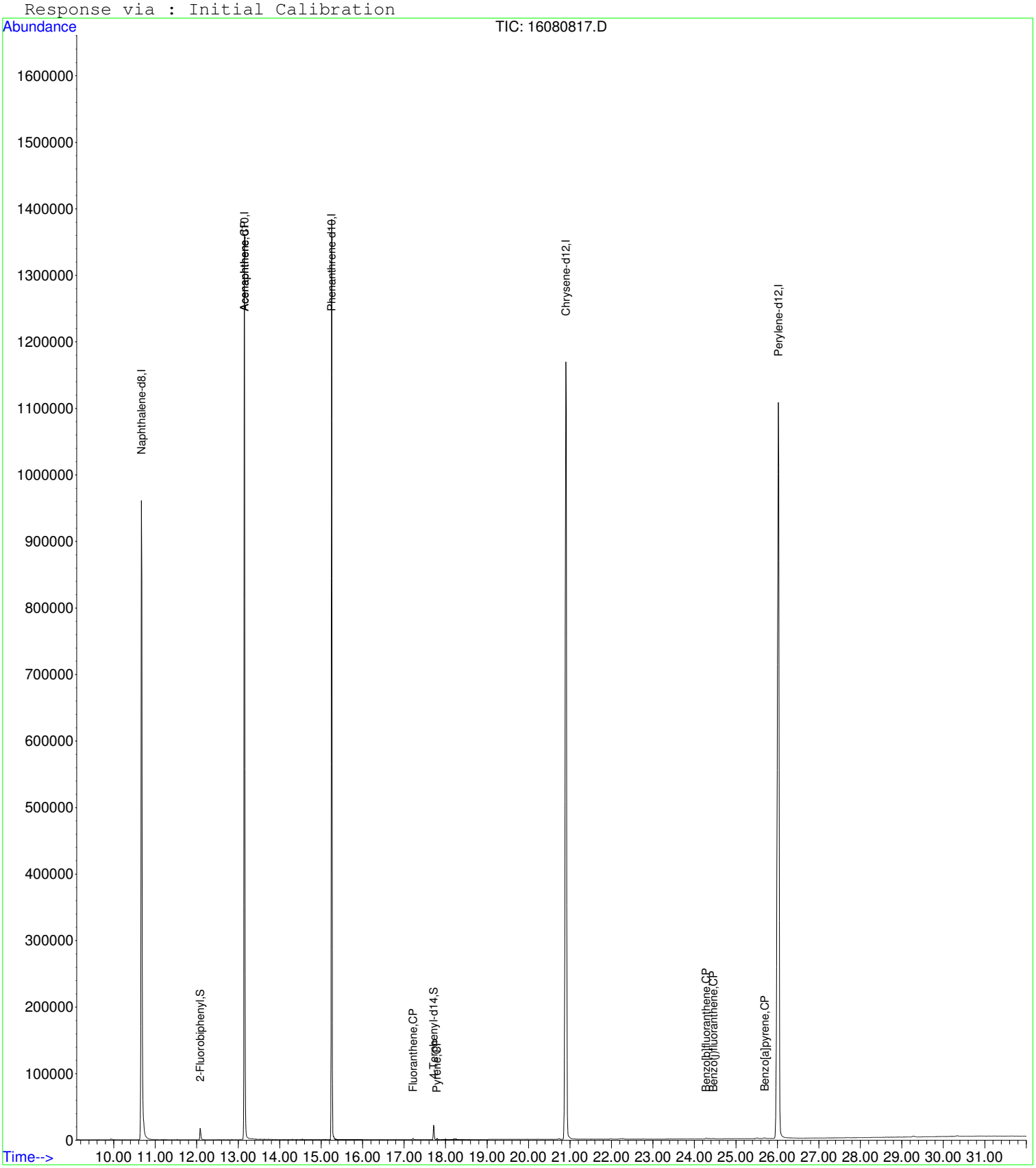
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.67	136	1519860	4000.00	ug/kg	108
5) Acenaphthene-d10	13.15	164	798704	4000.00	ug/kg	133
11) Phenanthrene-d10	15.26	188	1587613	4000.00	ug/kg	100
17) Chrysene-d12	20.90	240	2106954	4000.00	ug/kg	115
20) Perylene-d12	26.02	264	2253204	4000.00	ug/kg	117
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.08	172	20867	74.90	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.87%#		
16) 4-Terphenyl-d14	17.71	244	30961	82.64	ug/kg	-0.03
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.07%#		
Target Compounds						Qvalue
9) Acenaphthene	13.15	154	2680	13.08	ug/kg#	9
14) Fluoranthene	17.22	202	2768	6.21	ug/kg	100
15) Pyrene	17.79	202	2661	5.88	ug/kg	97
21) Benzo[b]fluoranthene	24.28	252	2653	5.10	ug/kg	98
23) Benzo(j)fluoranthene	24.46	252	1211	2.64	ug/kg	85
25) Benzo[a]pyrene	25.70	252	2679	5.33	ug/kg	90

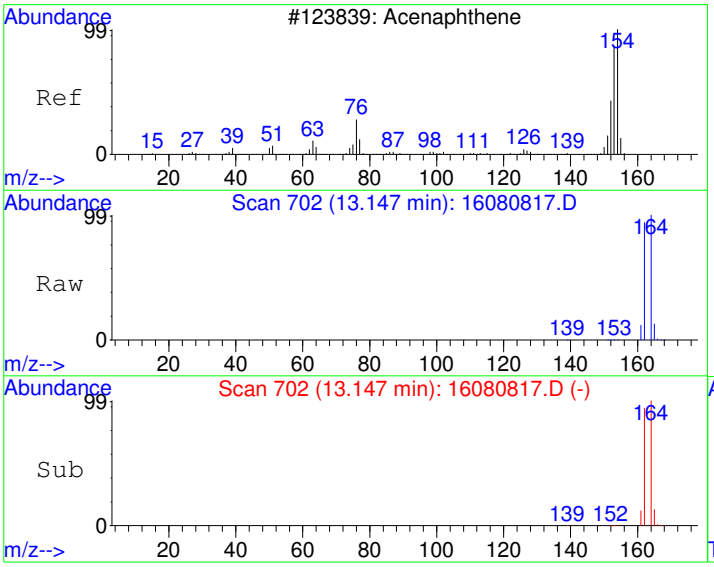
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160808\16080817.D Vial: 17
Acq On : 8 Aug 2016 8:58 pm Operator: DEW
Sample : 1607314-03A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 9 15:04 2016 Quant Results File: PP160801.RES

Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration

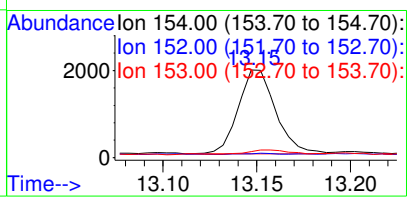


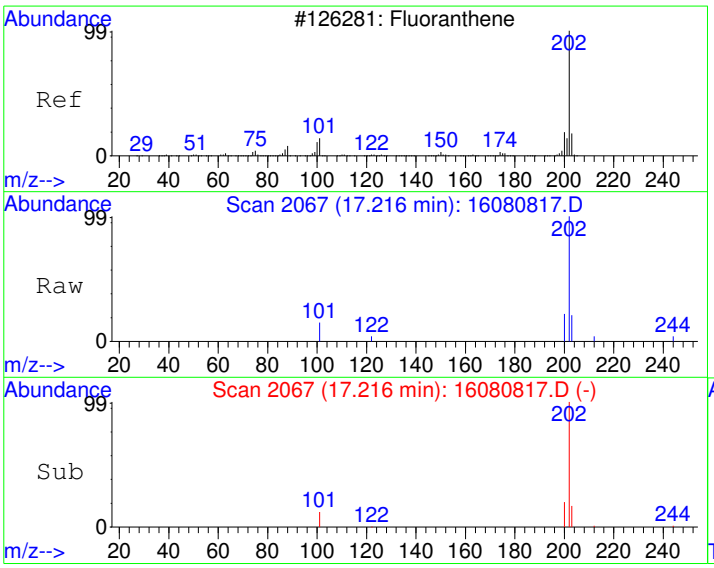


#9
Acenaphthene
Concen: 13.08 ug/kg
RT: 13.15 min Scan# 702
Delta R.T. -0.07 min
Lab File: 16080817.D
Acq: 8 Aug 2016 8:58 pm

Tgt Ion:154 Resp: 2680

Ion	Ratio	Lower	Upper
154	100		
152	0.4	19.1	79.1#
153	2.8	76.2	136.2#

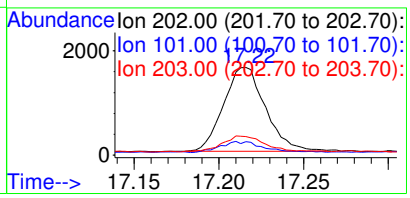


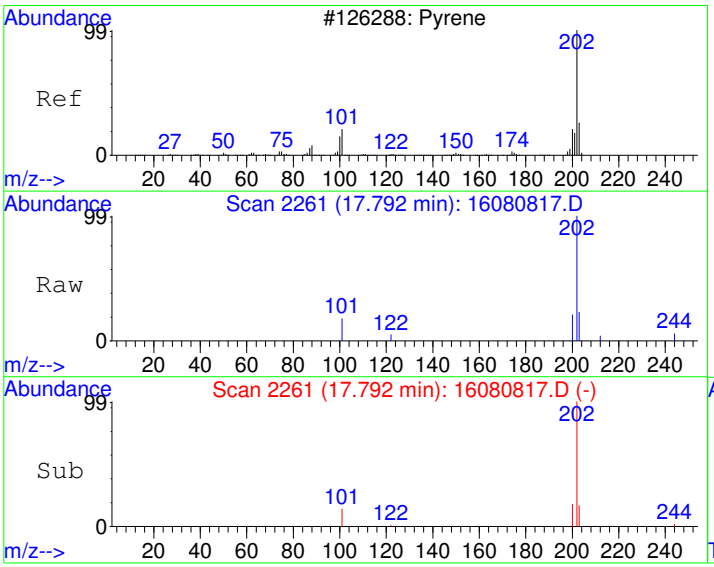


#14
Fluoranthene
Concen: 6.21 ug/kg
RT: 17.22 min Scan# 2067
Delta R.T. -0.01 min
Lab File: 16080817.D
Acq: 8 Aug 2016 8:58 pm

Tgt Ion:202 Resp: 2768

Ion	Ratio	Lower	Upper
202	100		
101	12.4	0.0	42.1
203	17.8	0.0	47.9

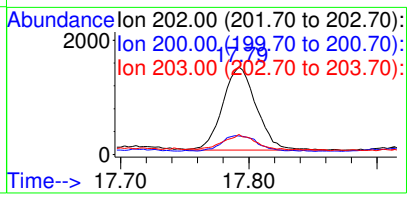


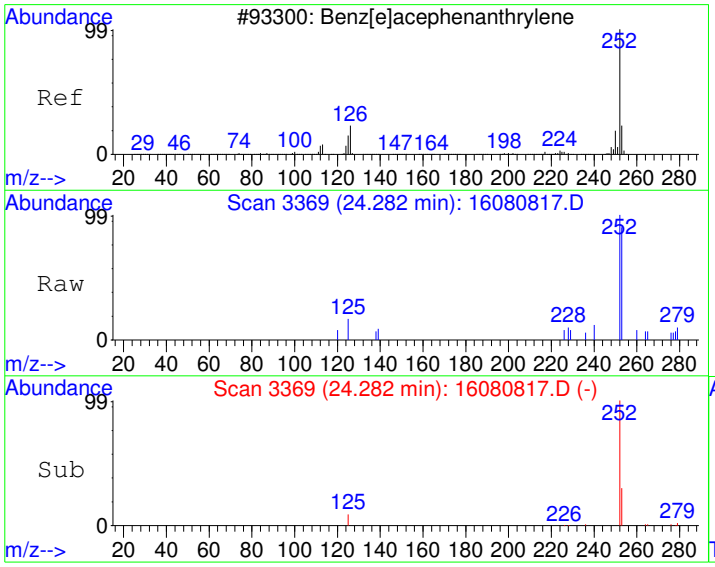


#15
Pyrene
Concen: 5.88 ug/kg
RT: 17.79 min Scan# 2261
Delta R.T. -0.02 min
Lab File: 16080817.D
Acq: 8 Aug 2016 8:58 pm

Tgt Ion:202 Resp: 2661

Ion	Ratio	Lower	Upper
202	100		
200	17.7	0.0	49.7
203	18.5	0.0	47.8

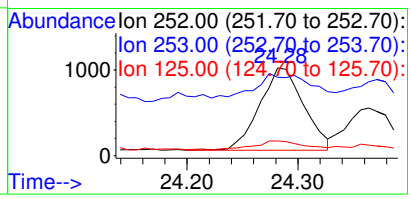


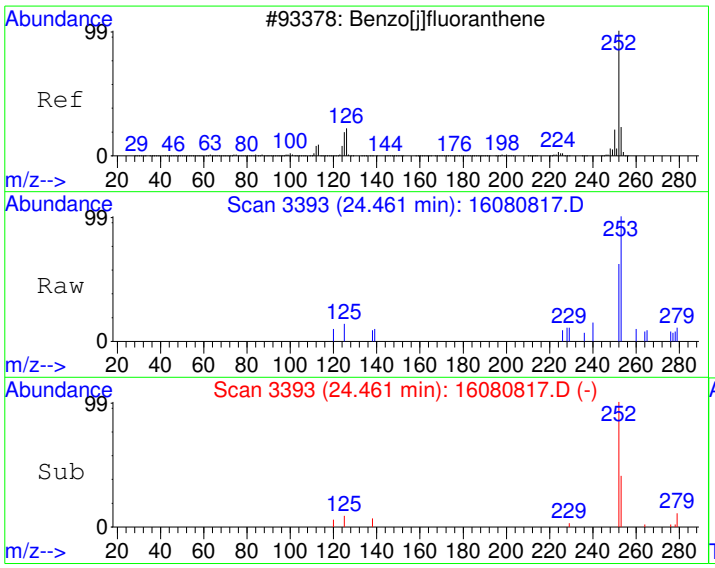


#21
Benzo[b]fluoranthene
Concen: 5.10 ug/kg
RT: 24.28 min Scan# 3369
Delta R.T. -0.05 min
Lab File: 16080817.D
Acq: 8 Aug 2016 8:58 pm

Tgt Ion:252 Resp: 2653

Ion	Ratio	Lower	Upper
252	100		
253	23.1	0.0	52.0
125	10.6	0.0	40.6

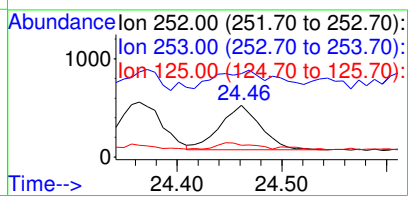


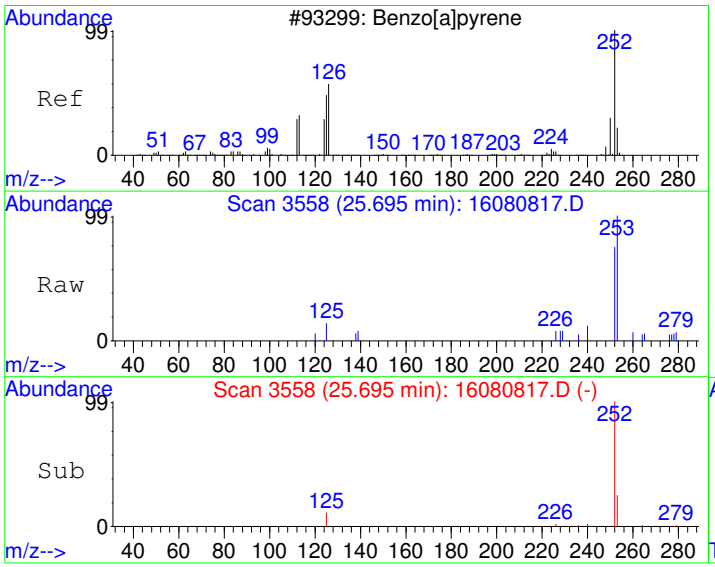


#23
Benzo(j)fluoranthene
Concen: 2.64 ug/kg
RT: 24.46 min Scan# 3393
Delta R.T. -0.05 min
Lab File: 16080817.D
Acq: 8 Aug 2016 8:58 pm

Tgt Ion:252 Resp: 1211

Ion	Ratio	Lower	Upper
252	100		
253	31.2	2.2	42.2
125	10.6	0.0	34.4

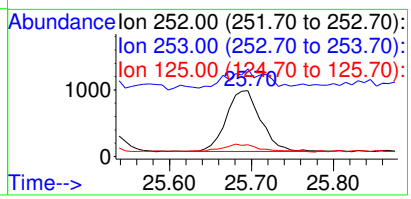




#25
Benzo[a]pyrene
Concen: 5.33 ug/kg
RT: 25.70 min Scan# 3558
Delta R.T. -0.04 min
Lab File: 16080817.D
Acq: 8 Aug 2016 8:58 pm

Tgt Ion:252 Resp: 2679

Ion	Ratio	Lower	Upper
252	100		
253	28.9	2.0	42.0
125	11.7	0.0	31.6



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160808\16080819.D Vial: 19
Acq On : 8 Aug 2016 10:19 pm Operator: DEW
Sample : ICV2-160808 Inst : GC/MS #6
Misc : ICV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 9 9:17 2016 Quant Results File: PP160801.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration
DataAcq Meth : PP160801

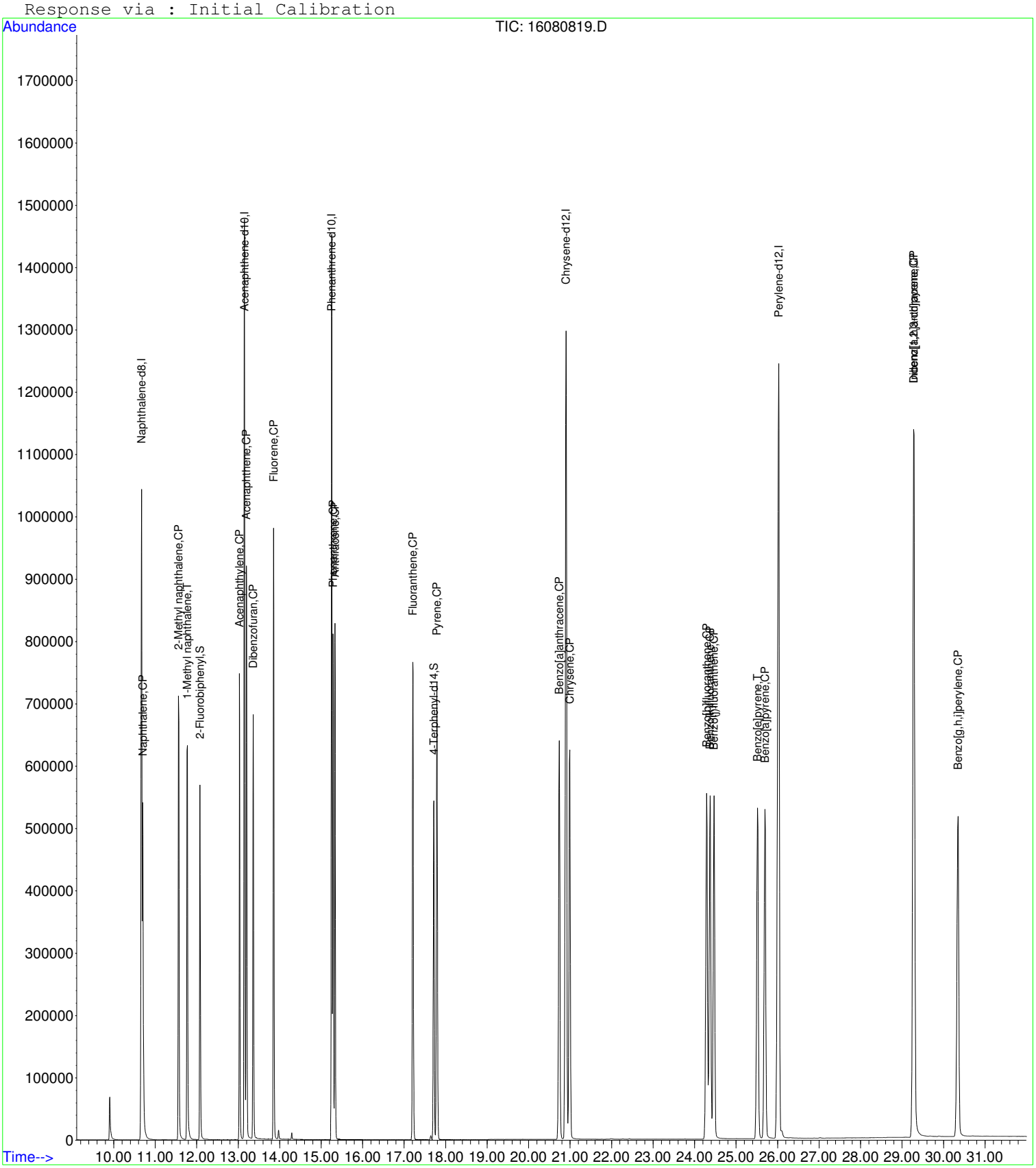
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.67	136	1552010	4000.00	ug/kg	111
5) Acenaphthene-d10	13.15	164	869342	4000.00	ug/kg	145
11) Phenanthrene-d10	15.25	188	1712926	4000.00	ug/kg	108
17) Chrysene-d12	20.90	240	2312625	4000.00	ug/kg	126
20) Perylene-d12	26.03	264	2515450	4000.00	ug/kg	130
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.08	172	538136	1774.63	ug/kg	-0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery = 44.37%			
16) 4-Terphenyl-d14	17.71	244	768891	1902.11	ug/kg	-0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery = 47.55%			
Target Compounds						Qvalue
2) Naphthalene	10.70	128	640455	1813.70	ug/kg	100
3) 2-Methyl naphthalene	11.56	142	460978	2013.71	ug/kg	95
4) 1-Methyl naphthalene	11.77	142	417621	2059.58	ug/kg	98
6) Dibenzofuran	13.36	168	638842	1815.86	ug/kg	100
8) Acenaphthylene	13.03	152	717927	1864.85	ug/kg	100
9) Acenaphthene	13.20	154	422305	1894.06	ug/kg	100
10) Fluorene	13.85	166	530316	1892.16	ug/kg	99
12) Phenanthrene	15.29	178	734777	1809.32	ug/kg	100
13) Anthracene	15.33	178	764378	1788.77	ug/kg	100
14) Fluoranthene	17.21	202	843851	1753.38	ug/kg	100
15) Pyrene	17.79	202	863708	1769.90	ug/kg	100
18) Benzo[a]anthracene	20.74	228	986523	1892.60	ug/kg	99
19) Chrysene	20.99	228	931165	1856.90	ug/kg	99
21) Benzo[b]fluoranthene	24.29	252	1105119	1903.07	ug/kg	99
22) Benzo[k]fluoranthene	24.37	252	1036671	1945.93	ug/kg	99
23) Benzo(j)fluoranthene	24.47	252	999377	1952.03	ug/kg	100
24) Benzo[e]pyrene	25.52	252	1081369	1918.90	ug/kg	99
25) Benzo[a]pyrene	25.70	252	1066411	1900.62	ug/kg	99
26) Dibenz[a,h]anthracene	29.28	278	1119337	2061.53	ug/kg	98
27) Indeno[1,2,3-cd]pyrene	29.29	276	1305778	2026.59	ug/kg	99
28) Benzo[g,h,i]perylene	30.35	276	1098140	2034.89	ug/kg	97

(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160808\16080819.D Vial: 19
Acq On : 8 Aug 2016 10:19 pm Operator: DEW
Sample : ICV2-160808 Inst : GC/MS #6
Misc : ICV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 9 9:17 2016 Quant Results File: PP160801.RES

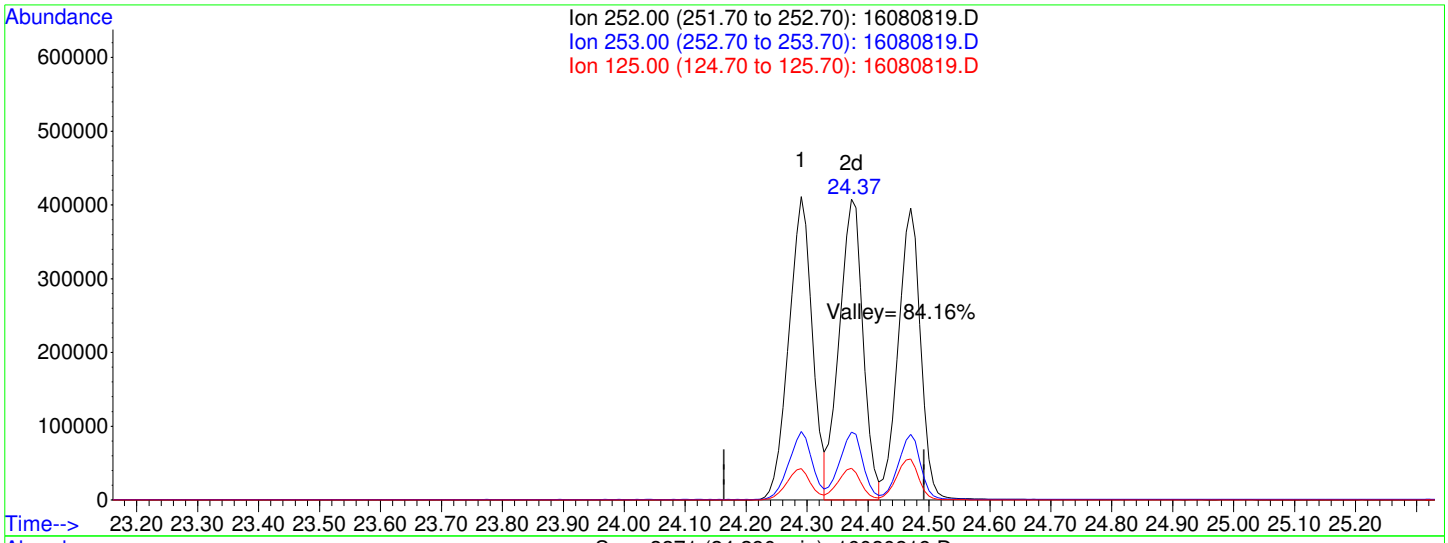
Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration

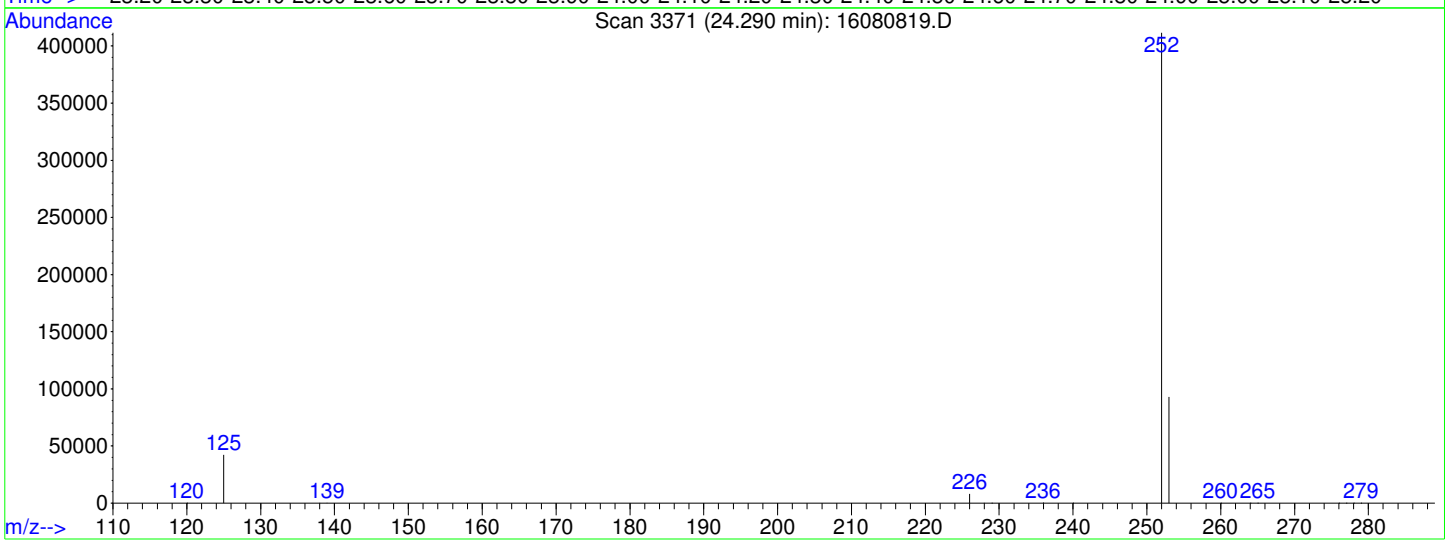


Quantitation Report (Qedit)

Data File : C:\HPCHEM\1\DATA\160808\16080819.D Vial: 19
Acq On : 8 Aug 2016 10:19 pm Operator: DEW
Sample : ICV2-160808 Inst : GC/MS #6
Misc : ICV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 8 22:51 2016 Quant Results File: temp.res

Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Multiple Level Calibration





TIC: 16080819.D

(21) Benzo[b]fluoranthene (CP)

24.29min 1903.07ug/kg

response 1105119

Ion	Exp%	Act%
252.00	100	100
253.00	22.00	22.40
125.00	10.60	10.28
0.00	0.00	0.00

Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160808\16080821.D Vial: 21
Acq On : 8 Aug 2016 11:41 pm Operator: DEW
Sample : SB-160808 Inst : GC/MS #6
Misc : SBLK Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 9 9:18 2016 Quant Results File: PP160801.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration
DataAcq Meth : PP160801

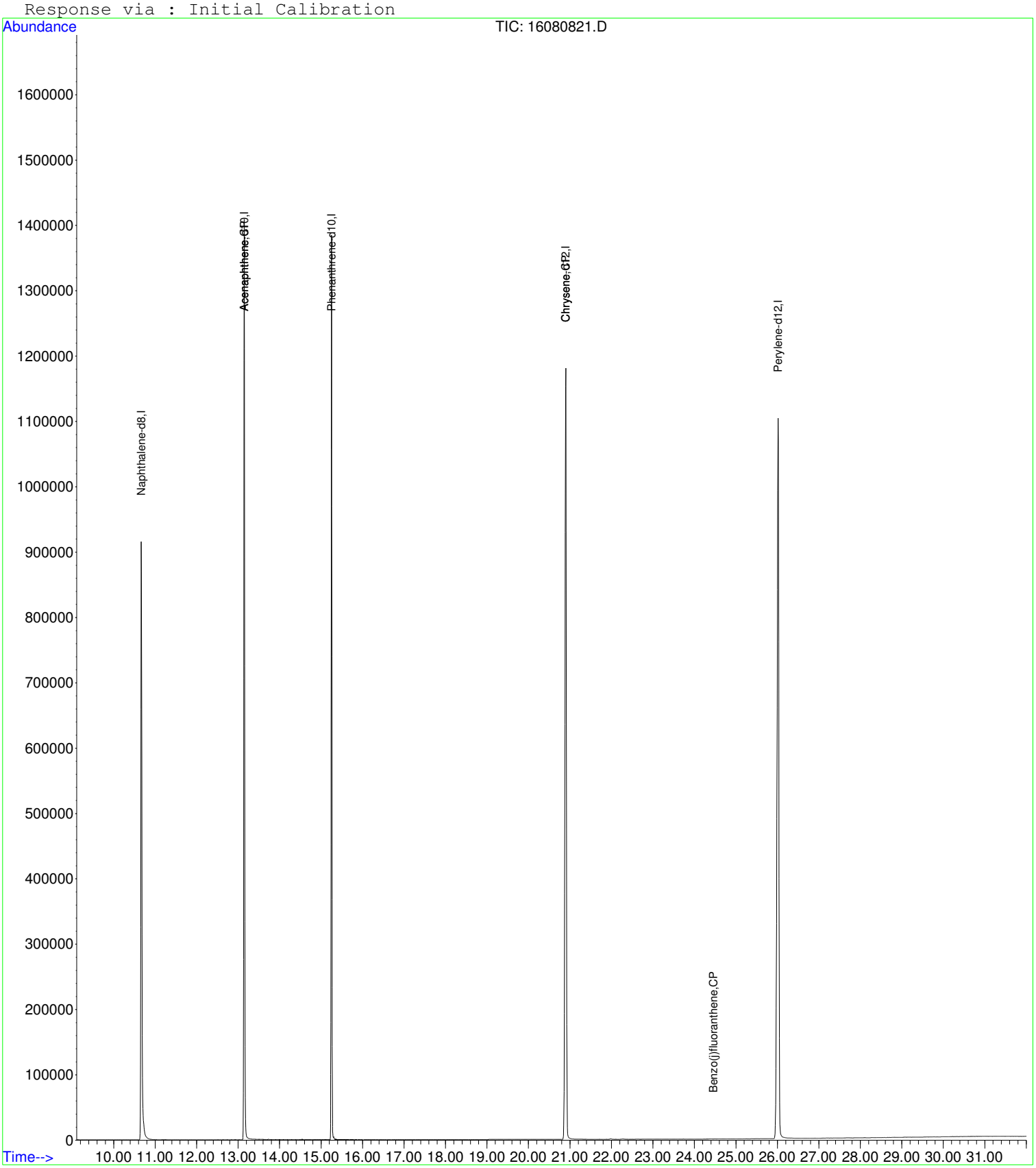
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.67	136	1474476	4000.00	ug/kg	105
5) Acenaphthene-d10	13.15	164	831517	4000.00	ug/kg	139
11) Phenanthrene-d10	15.25	188	1573704	4000.00	ug/kg	99
17) Chrysene-d12	20.90	240	2079132	4000.00	ug/kg	113
20) Perylene-d12	26.02	264	2219968	4000.00	ug/kg	115
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.10	172	31	0.11	ug/kg	0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery =	0.00%#		
16) 4-Terphenyl-d14	17.67	244	5	0.01	ug/kg	-0.06
Spiked Amount 4000.000	Range 40 - 140		Recovery =	0.00%#		
Target Compounds						Qvalue
9) Acenaphthene	13.15	154	2853	13.38	ug/kg#	11
19) Chrysene	20.90	228	4433	9.83	ug/kg	69
23) Benzo(j)fluoranthene	24.45	252	15	0.03	ug/kg#	1

(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160808\16080821.D Vial: 21
Acq On : 8 Aug 2016 11:41 pm Operator: DEW
Sample : SB-160808 Inst : GC/MS #6
Misc : SBLK Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 9 9:18 2016 Quant Results File: PP160801.RES

Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160808\16080822.D Vial: 22
Acq On : 9 Aug 2016 12:21 am Operator: DEW
Sample : 1607314-04A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 9 9:03 2016 Quant Results File: PP160801.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration
DataAcq Meth : PP160801

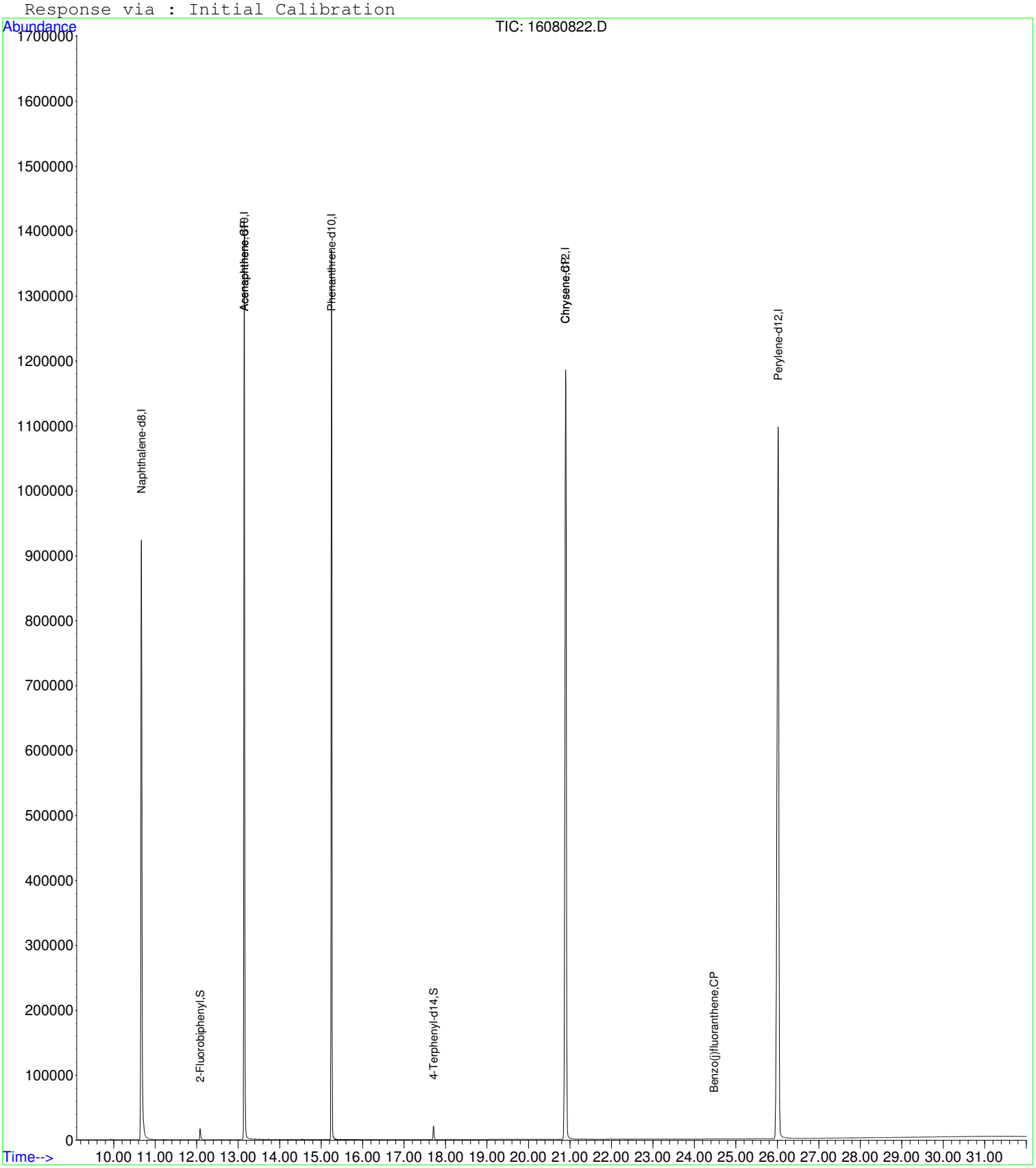
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.67	136	1524581	4000.00	ug/kg	109
5) Acenaphthene-d10	13.15	164	831851	4000.00	ug/kg	139
11) Phenanthrene-d10	15.25	188	1589873	4000.00	ug/kg	100
17) Chrysene-d12	20.89	240	2130562	4000.00	ug/kg	116
20) Perylene-d12	26.02	264	2288814	4000.00	ug/kg	119
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.09	172	20949	72.20	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.80%#		
16) 4-Terphenyl-d14	17.71	244	30371	80.95	ug/kg	-0.03
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.02%#		
Target Compounds						Qvalue
9) Acenaphthene	13.15	154	2750	~~12.89~~	~~ug/kg#~~	~~11~~
19) Chrysene	20.90	228	4663	~~10.09~~	~~ug/kg~~	~~68~~
23) Benzo(j)fluoranthene	24.47	252	31	0.07	ug/kg#	1

(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160808\16080822.D Vial: 22
Acq On : 9 Aug 2016 12:21 am Operator: DEW
Sample : 1607314-04A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 9 9:03 2016 Quant Results File: PP160801.RES

Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160808\16080823.D Vial: 23
Acq On : 9 Aug 2016 1:02 am Operator: DEW
Sample : 1607314-05A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 9 9:03 2016 Quant Results File: PP160801.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration
DataAcq Meth : PP160801

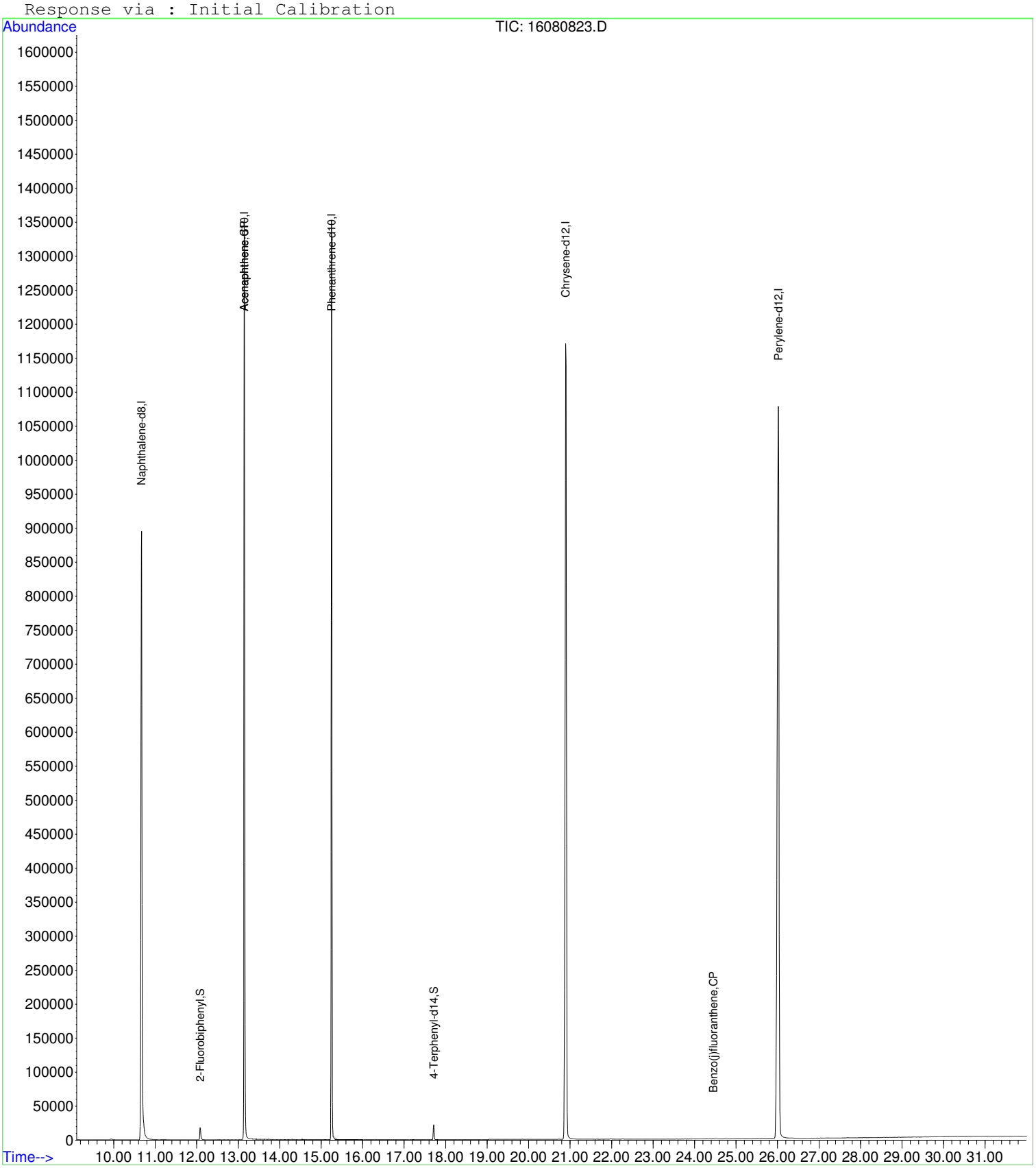
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.67	136	1481381	4000.00	ug/kg	106
5) Acenaphthene-d10	13.15	164	807101	4000.00	ug/kg	135
11) Phenanthrene-d10	15.25	188	1534984	4000.00	ug/kg	97
17) Chrysene-d12	20.90	240	2051133	4000.00	ug/kg	112
20) Perylene-d12	26.02	264	2200287	4000.00	ug/kg	114
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.09	172	21927	77.89	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.95%#		
16) 4-Terphenyl-d14	17.71	244	31177	86.07	ug/kg	-0.03
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.15%#		
Target Compounds						Qvalue
9) Acenaphthene	13.15	154	2684	12.97	ug/kg#	10
23) Benzo(j)fluoranthene	24.46	252	366	0.82	ug/kg#	62

(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160808\16080823.D Vial: 23
Acq On : 9 Aug 2016 1:02 am Operator: DEW
Sample : 1607314-05A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 9 9:03 2016 Quant Results File: PP160801.RES

Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160808\16080824.D Vial: 24
Acq On : 9 Aug 2016 1:43 am Operator: DEW
Sample : 1607314-06A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 9 9:03 2016 Quant Results File: PP160801.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration
DataAcq Meth : PP160801

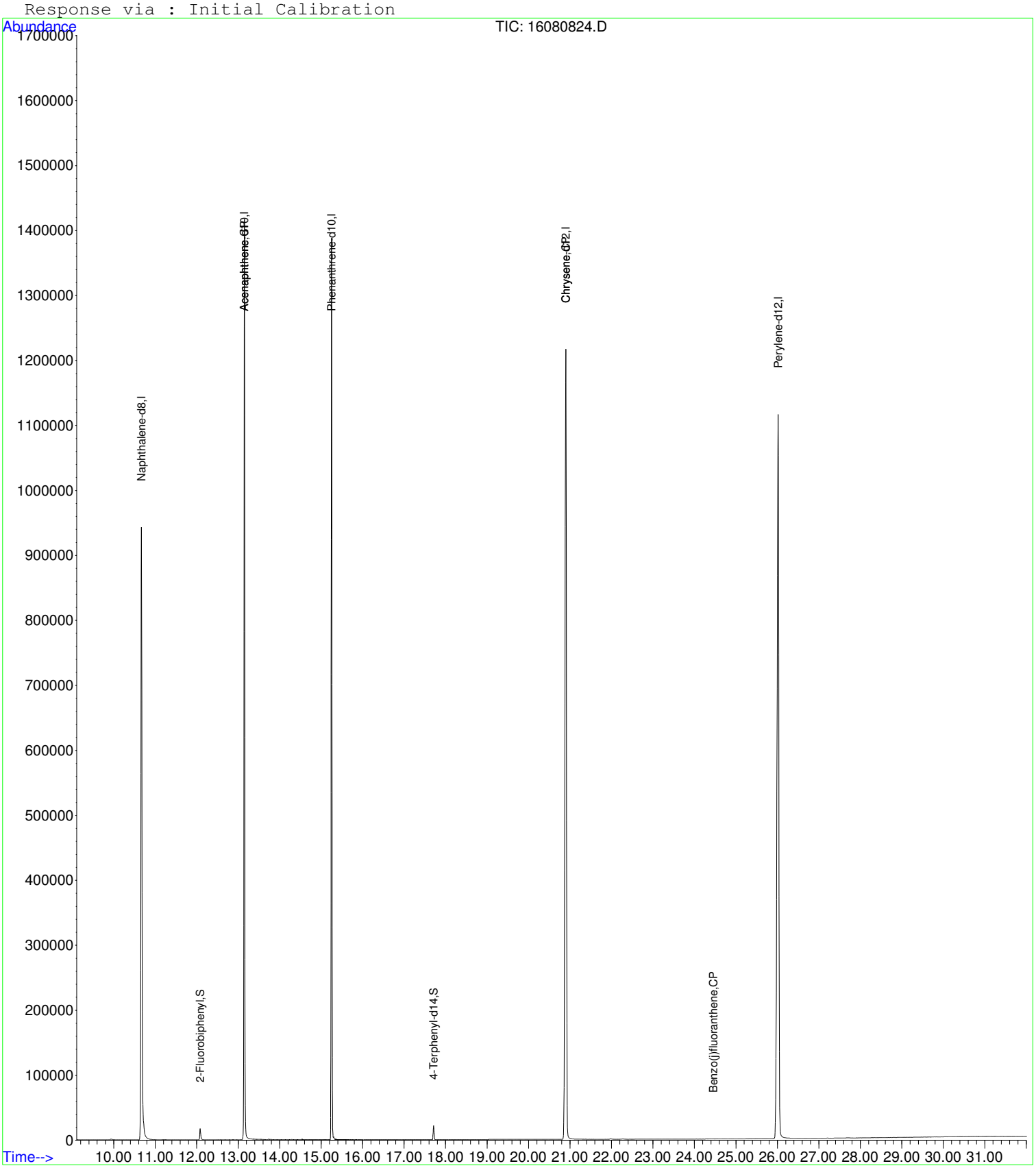
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.67	136	1526598	4000.00	ug/kg	109
5) Acenaphthene-d10	13.15	164	825997	4000.00	ug/kg	138
11) Phenanthrene-d10	15.25	188	1614060	4000.00	ug/kg	101
17) Chrysene-d12	20.90	240	2135230	4000.00	ug/kg	116
20) Perylene-d12	26.02	264	2280496	4000.00	ug/kg	118
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.08	172	20946	72.70	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.82%#		
16) 4-Terphenyl-d14	17.71	244	30987	81.35	ug/kg	-0.03
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.03%#		
Target Compounds						Qvalue
9) Acenaphthene	13.15	154	2720	12.84	ug/kg#	11
19) Chrysene	20.90	228	4595	9.92	ug/kg	72
23) Benzo(j)fluoranthene	24.45	252	57	0.12	ug/kg#	1

(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160808\16080824.D Vial: 24
Acq On : 9 Aug 2016 1:43 am Operator: DEW
Sample : 1607314-06A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 9 9:03 2016 Quant Results File: PP160801.RES

Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160808\16080829.D Vial: 29
Acq On : 9 Aug 2016 5:05 am Operator: DEW
Sample : 1607314-03AMS Inst : GC/MS #6
Misc : MS Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 9 9:18 2016 Quant Results File: PP160801.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration
DataAcq Meth : PP160801

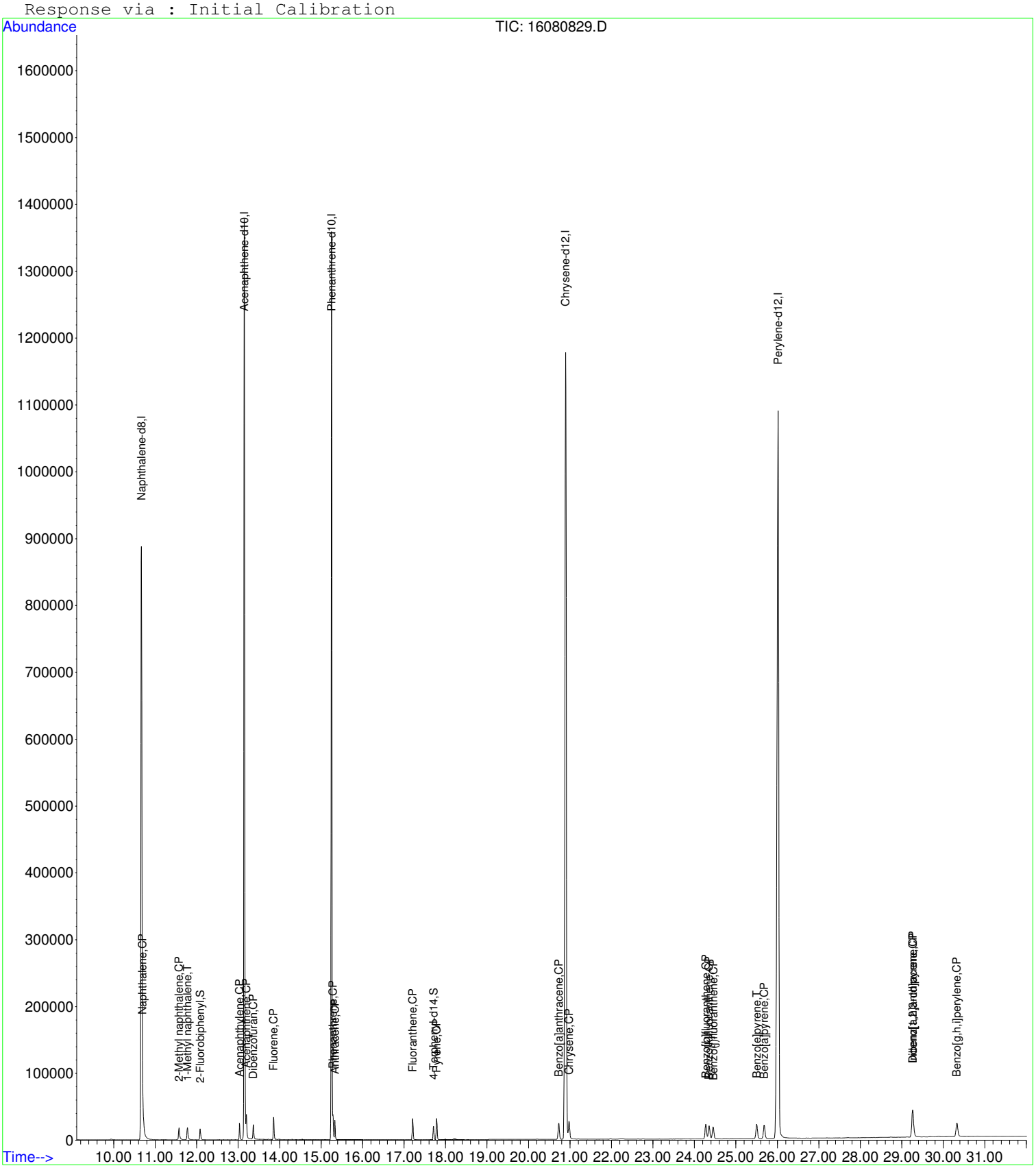
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.67	136	1486020	4000.00	ug/kg	106
5) Acenaphthene-d10	13.15	164	805758	4000.00	ug/kg	134
11) Phenanthrene-d10	15.25	188	1555153	4000.00	ug/kg	98
17) Chrysene-d12	20.89	240	2099049	4000.00	ug/kg	114
20) Perylene-d12	26.02	264	2225562	4000.00	ug/kg	115
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.08	172	19643	69.89	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.75%#		
16) 4-Terphenyl-d14	17.71	244	28091	76.54	ug/kg	-0.03
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.91%#		
Target Compounds						Qvalue
2) Naphthalene	10.70	128	23681	70.04	ug/kg	99
3) 2-Methyl naphthalene	11.57	142	16746	76.40	ug/kg	97
4) 1-Methyl naphthalene	11.77	142	15202	78.30	ug/kg	97
6) Dibenzofuran	13.37	168	23256	71.32	ug/kg	99
8) Acenaphthylene	13.03	152	25157	70.50	ug/kg	100
9) Acenaphthene	13.20	154	15285	73.96	ug/kg	99
10) Fluorene	13.85	166	19160	73.76	ug/kg	100
12) Phenanthrene	15.29	178	28836	78.21	ug/kg	98
13) Anthracene	15.33	178	27119	69.90	ug/kg	100
14) Fluoranthene	17.21	202	36176	82.79	ug/kg	99
15) Pyrene	17.79	202	37263	84.11	ug/kg	98
18) Benzo[a]anthracene	20.73	228	37132	78.48	ug/kg	99
19) Chrysene	20.98	228	37135	81.59	ug/kg	99
21) Benzo[b]fluoranthene	24.27	252	42438	82.60	ug/kg	99
22) Benzo[k]fluoranthene	24.36	252	38595	81.88	ug/kg	98
23) Benzo(j)fluoranthene	24.45	252	37036	81.76	ug/kg	98
24) Benzo[e]pyrene	25.50	252	42673	85.59	ug/kg	98
25) Benzo[a]pyrene	25.68	252	41221	83.04	ug/kg	99
26) Dibenz[a,h]anthracene	29.26	278	39387	81.99	ug/kg	97
27) Indeno[1,2,3-cd]pyrene	29.26	276	50045	87.79	ug/kg	98
28) Benzo[g,h,i]perylene	30.33	276	43281	90.65	ug/kg	97

(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160808\16080829.D Vial: 29
Acq On : 9 Aug 2016 5:05 am Operator: DEW
Sample : 1607314-03AMS Inst : GC/MS #6
Misc : MS Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 9 9:18 2016 Quant Results File: PP160801.RES

Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160808\16080830.D Vial: 30
Acq On : 9 Aug 2016 5:45 am Operator: DEW
Sample : 1607314-03AMSD Inst : GC/MS #6
Misc : MSD Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 9 9:18 2016 Quant Results File: PP160801.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration
DataAcq Meth : PP160801

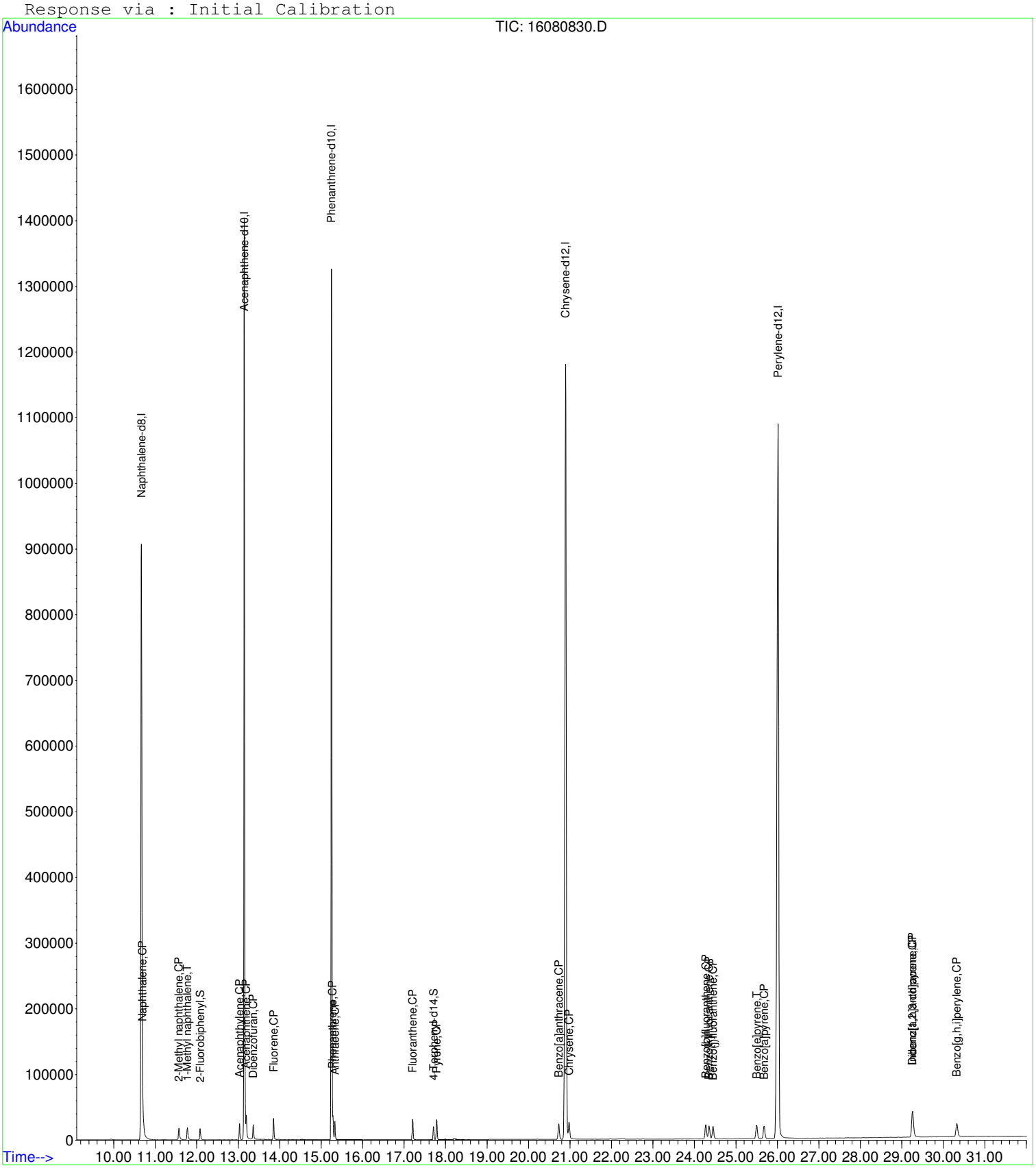
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.67	136	1480781	4000.00	ug/kg	106
5) Acenaphthene-d10	13.15	164	811775	4000.00	ug/kg	135
11) Phenanthrene-d10	15.25	188	1546510	4000.00	ug/kg	97
17) Chrysene-d12	20.89	240	2091666	4000.00	ug/kg	114
20) Perylene-d12	26.02	264	2239320	4000.00	ug/kg	116
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.08	172	20423	72.13	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.80%#		
16) 4-Terphenyl-d14	17.71	244	28329	77.62	ug/kg	-0.03
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.94%#		
Target Compounds						Qvalue
2) Naphthalene	10.70	128	23439	69.57	ug/kg	100
3) 2-Methyl naphthalene	11.57	142	16870	77.24	ug/kg	100
4) 1-Methyl naphthalene	11.77	142	15179	78.46	ug/kg	97
6) Dibenzofuran	13.36	168	23388	71.19	ug/kg	98
8) Acenaphthylene	13.03	152	25155	69.98	ug/kg	99
9) Acenaphthene	13.20	154	15333	73.65	ug/kg	98
10) Fluorene	13.85	166	19222	73.45	ug/kg	100
12) Phenanthrene	15.28	178	27673	75.47	ug/kg	98
13) Anthracene	15.33	178	26661	69.10	ug/kg	99
14) Fluoranthene	17.21	202	34956	80.45	ug/kg	99
15) Pyrene	17.79	202	35453	80.47	ug/kg	99
18) Benzo[a]anthracene	20.73	228	36726	77.90	ug/kg	99
19) Chrysene	20.98	228	36013	79.40	ug/kg	99
21) Benzo[b]fluoranthene	24.27	252	42881	82.95	ug/kg	99
22) Benzo[k]fluoranthene	24.35	252	38153	80.45	ug/kg	99
23) Benzo(j)fluoranthene	24.45	252	36524	80.14	ug/kg	98
24) Benzo[e]pyrene	25.50	252	41839	83.40	ug/kg	99
25) Benzo[a]pyrene	25.68	252	39986	80.05	ug/kg	99
26) Dibenz[a,h]anthracene	29.26	278	39112	80.92	ug/kg	98
27) Indeno[1,2,3-cd]pyrene	29.26	276	49767	86.76	ug/kg	99
28) Benzo[g,h,i]perylene	30.33	276	42887	89.27	ug/kg	96

(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160808\16080830.D Vial: 30
Acq On : 9 Aug 2016 5:45 am Operator: DEW
Sample : 1607314-03AMSD Inst : GC/MS #6
Misc : MSD Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 9 9:18 2016 Quant Results File: PP160801.RES

Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160808\16080831.D Vial: 31
Acq On : 9 Aug 2016 6:25 am Operator: DEW
Sample : CCV1-160808 Inst : GC/MS #6
Misc : CCV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 9 9:18 2016 Quant Results File: PP160801.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration
DataAcq Meth : PP160801

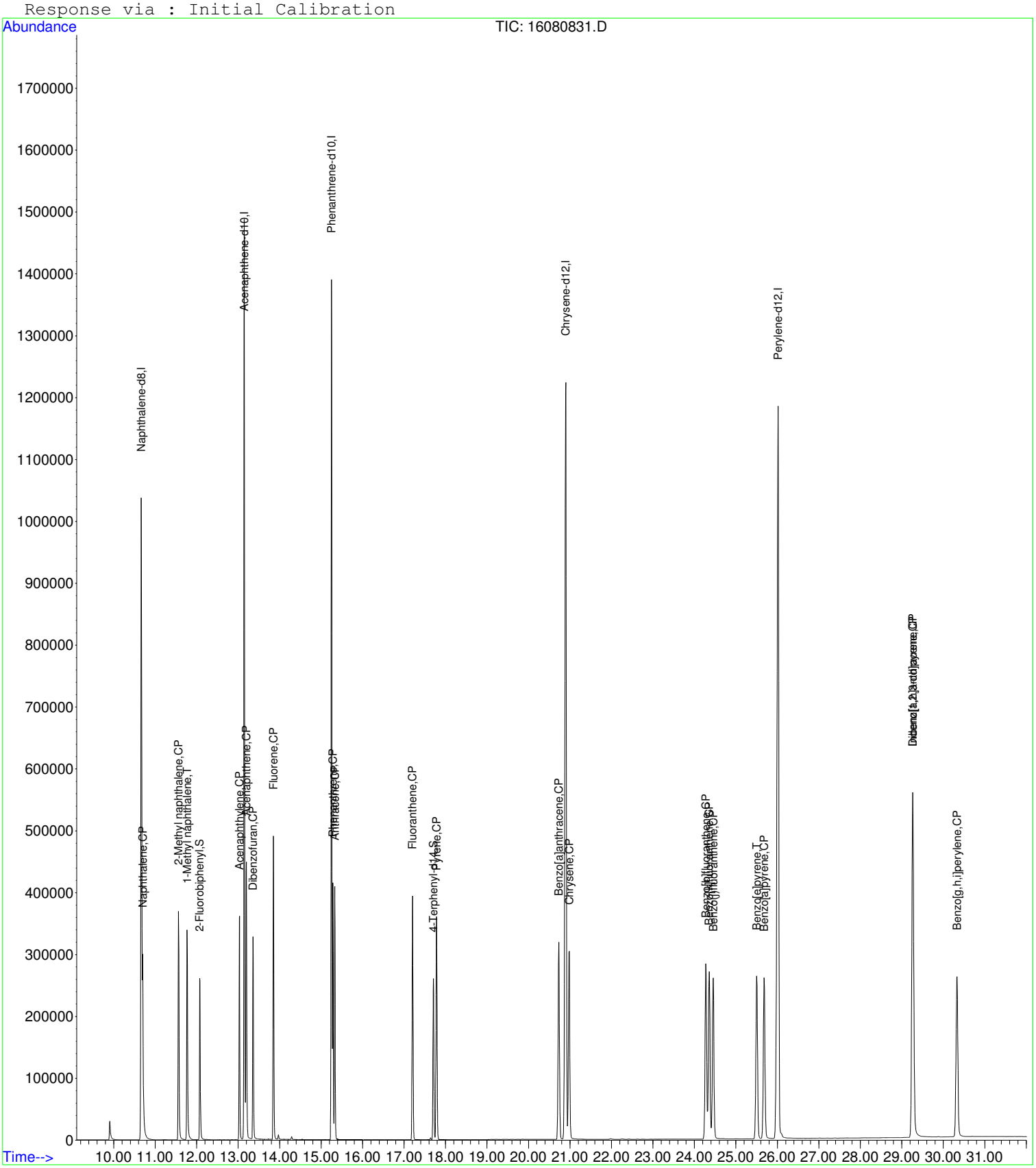
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.66	136	1560538	4000.00	ug/kg	111
5) Acenaphthene-d10	13.15	164	858725	4000.00	ug/kg	143
11) Phenanthrene-d10	15.25	188	1638165	4000.00	ug/kg	103
17) Chrysene-d12	20.90	240	2214392	4000.00	ug/kg	121
20) Perylene-d12	26.02	264	2393523	4000.00	ug/kg	124
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.07	172	270209	902.10	ug/kg	-0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery = 22.55%#			
16) 4-Terphenyl-d14	17.71	244	362494	937.67	ug/kg	-0.03
Spiked Amount 4000.000	Range 40 - 140		Recovery = 23.44%#			
Target Compounds						Qvalue
2) Naphthalene	10.70	128	330333	930.36	ug/kg	100
3) 2-Methyl naphthalene	11.56	142	239480	1040.41	ug/kg	97
4) 1-Methyl naphthalene	11.77	142	216904	1063.86	ug/kg	97
6) Dibenzofuran	13.36	168	317649	914.06	ug/kg	100
8) Acenaphthylene	13.03	152	365898	962.19	ug/kg	99
9) Acenaphthene	13.20	154	212660	965.58	ug/kg	98
10) Fluorene	13.85	166	266062	961.04	ug/kg	100
12) Phenanthrene	15.28	178	366075	942.57	ug/kg	100
13) Anthracene	15.33	178	375943	919.92	ug/kg	100
14) Fluoranthene	17.20	202	419584	911.61	ug/kg	99
15) Pyrene	17.78	202	426112	913.04	ug/kg	100
18) Benzo[a]anthracene	20.73	228	487213	976.16	ug/kg	99
19) Chrysene	20.98	228	460891	959.87	ug/kg	100
21) Benzo[b]fluoranthene	24.27	252	560183	1013.80	ug/kg	100
22) Benzo[k]fluoranthene	24.36	252	511358	1008.76	ug/kg	100
23) Benzo(j)fluoranthene	24.45	252	485467	996.54	ug/kg	99
24) Benzo[e]pyrene	25.50	252	528135	984.92	ug/kg	100
25) Benzo[a]pyrene	25.68	252	524464	982.35	ug/kg	99
26) Dibenz[a,h]anthracene	29.26	278	548412	1061.49	ug/kg	99
27) Indeno[1,2,3-cd]pyrene	29.27	276	642748	1048.37	ug/kg	98
28) Benzo[g,h,i]perylene	30.33	276	538589	1048.86	ug/kg	98

(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160808\16080831.D Vial: 31
Acq On : 9 Aug 2016 6:25 am Operator: DEW
Sample : CCV1-160808 Inst : GC/MS #6
Misc : CCV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 9 9:18 2016 Quant Results File: PP160801.RES

Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration



GCMS6
Calibration Curve
For

DHL Work Order
1607314

CAL ID: 680

Method 8270 PAH Calibration Curve Sheet

Instrument ID: GCMS #6 **Calibration File Name:** PAH160801.CAL

Target Concentration	Solvent Amount mL	Standard Preparation Stocks and Surrogate (µL/mL)	Final Volume mL
5 ppb	0.999	0.001 mL of 5000 ppb	1
10 ppb	0.998	0.002 mL of 5000 ppb	1
50 ppb	0.990	0.01 mL of 5000 ppb	1
100 ppb	0.980	0.02 mL of 5000 ppb	1
500 ppb	0.900	0.10 mL of 5000 ppb	1
1000 ppb	0.800	0.20 mL of 5000 ppb	1
2000 ppb	0.600	0.40 mL of 5000 ppb	1
5000 ppb	----	PAHCAL160801	10
SSCV 2500 ppb	0.500	0.50 mL of PAHSSCV160725	1
SSCV 2500 ppb	----	PAHSSCV160801-1	1

Standards Used for the Calibration Curve

Primary Stock STDs	DHL Standard ID	Second Source (SS) Stock STDs	DHL Standard ID
5 PPM (5000 PPB) PAH CAL STD	**PAHCAL160801**	5PPM (5000PPB) PAH SSCV STD	**PAHSSCV160725**
		2.5PPM (2500PPB) PAH SSCV STD	**PAHSSCV160801-1**

Review Item	Acceptance Criteria	Yes	No	N/A	2nd Level Review
1. Are all standards within expiration dates?	Primary Stocks = 1 year Intermediate Standards = 6 months	X			X
2. Are all manual integrations listed on MI tracking form? **(DoD Projects only)**	Manual Integration Tracking Form			X	
3. Does the tune and resolution check meet criteria?	Benzo(b) / Benzo(k)phenanthrene Valley > 50% See Tune Eval Report	X			
4. Does the ICAL curve meet criteria? Use average CF only if %RSD < 15%	%RSD < 15% COD ≥ 0.990	X			
5. Has the low point been reprocessed under the new ICAL curve and meets criteria?	70-130% recovery	X			
6. Has the SSCV been analyzed and meets criteria?	80-120% recovery	X			

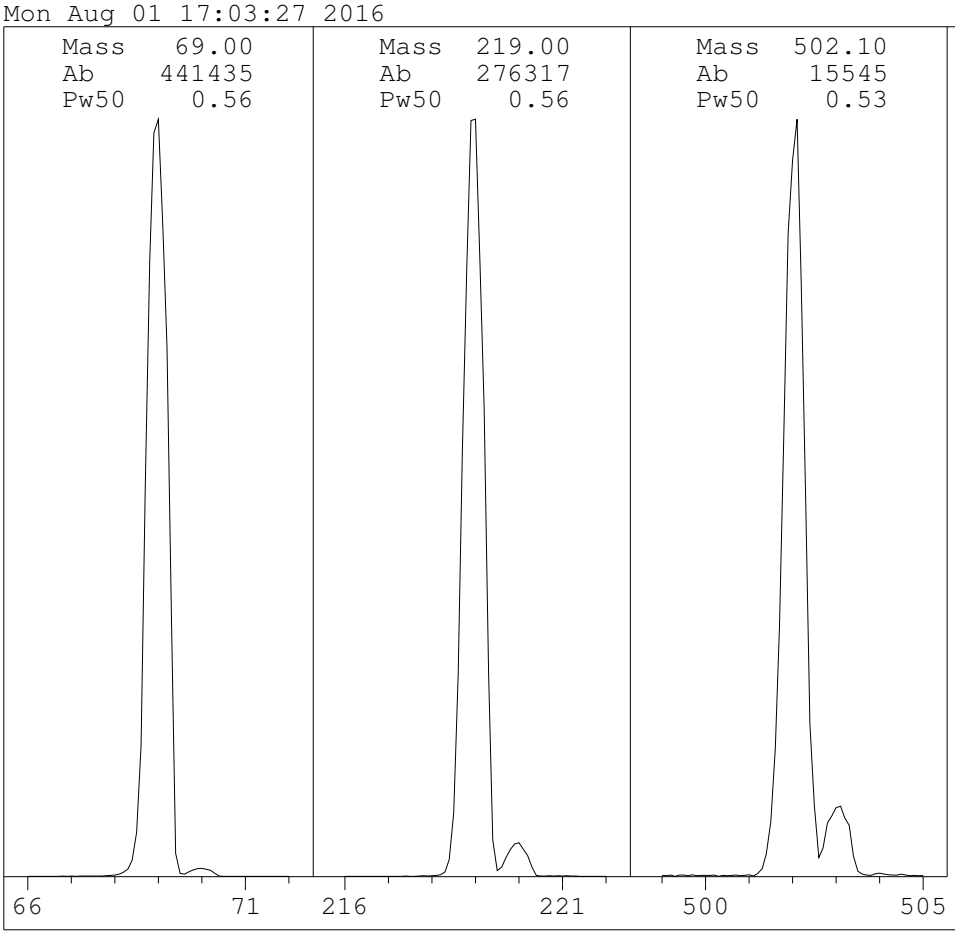
Analyst: Karyn Lane Date: 08/2/2016

Second-Level Review: Date: 08/02/2016

HP5973

Instrument: GC/MS #6

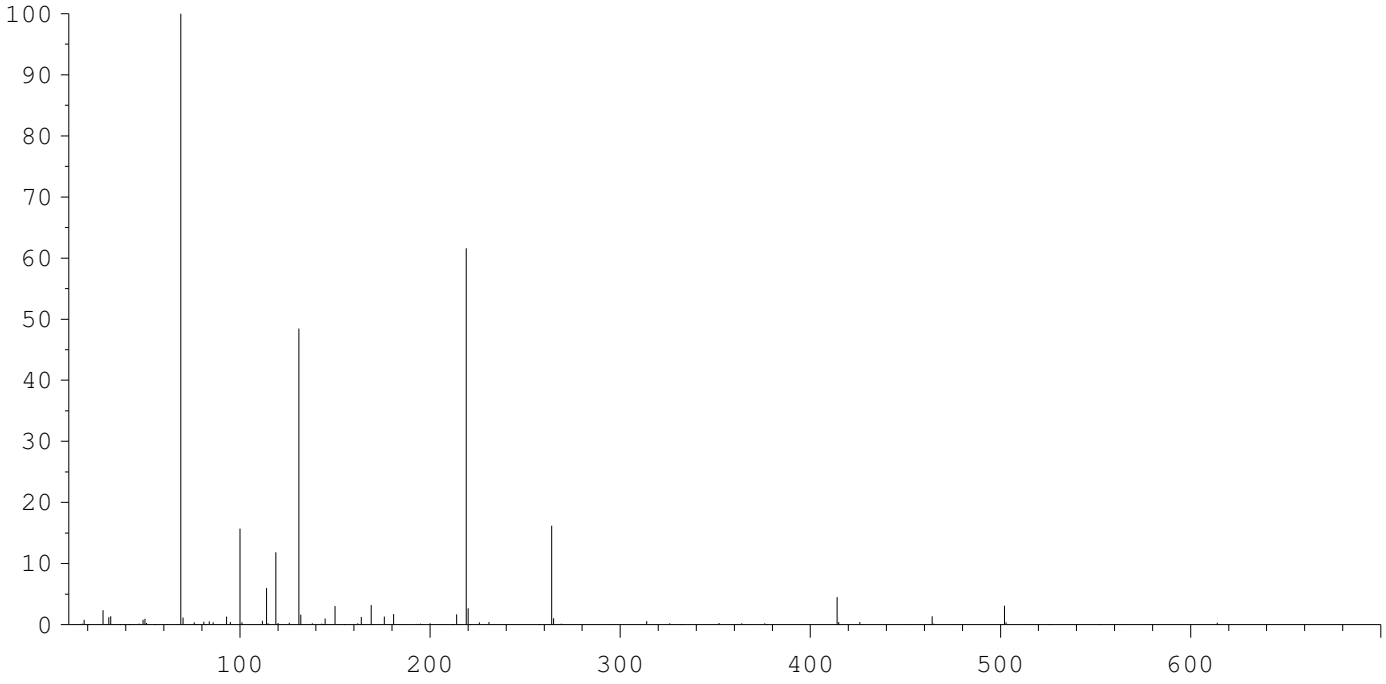
Mon Aug 01 17:03:27 2016 C:\HPCHEM\1\5973\ATUNE.U



Ion Pol	POS	MassGain	7
		MassOffs	-14
Emission	34.6	AmuGain	2205
EleEnergy	69.9	AmuOffs	127
Filament	2	Wid219	0.011
		DC Pol	POS
Repeller	19.90		
IonFocus	79.7	HED	ON
EntLens	11.5	EMVolts	1635
EntOffs	17.32		
		Samples	8
PFTBA	OPEN	Averages	3
		StepSize	0.10
Zones:			
MS Source	230	Foreline	73
MS Quad	150		

Scan: 10.00 - 700.00 Samples: 8 Thresh: 100

130 peaks Base: 69.00 Abundance: 387008



Mass	Abund	Rel Abund	Iso Mass	Iso Abund	Iso Ratio
69.00	387008	100.00	70.00	4591	1.19
219.00	238464	61.62	220.00	10470	4.39
502.00	12051	3.11	503.00	1348	11.19

TARGET MASS:	50	69	131	219	414	502
TARGET ABUND(%):	1.0	100.0	55.0	45.0	3.5	2.5
ACTUAL TUNE ABUND(%):	0.9	100.0	48.4	44.6	4.5	3.1

Response Factor Report GC/MS #6

Method Path : F:\IC\GCMS#6\
Method File : PP160801.M
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response Via : Initial Calibration

Calibration Files
1 =16080115.D 2 =16080116.D 3 =16080117.D 4 =16080118.D 5 =16080119.D 6 =16080120.D 7 =16080121.D
8 =16080122.D

		Compound	1	2	3	4	5	6	7	8	Avg	%RSD	Fit	RSD/CF	Constant	Linear	Quad
1)	I	Naphthalene-d8	----------ISTD----------														
2)	CP	Naphthalene	1.062	0.956	0.902	0.953	0.875	0.840	0.843	0.850	0.910	8.46	A	0.0846	0.0000	0.9101	0.0000
3)	CP	2-Methyl napht...	0.657	0.607	0.603	0.634	0.582	0.556	0.544	0.538	0.590	7.26	A	0.0726	0.0000	0.5900	0.0000
4)	T	1-Methyl napht...	0.569	0.527	0.538	0.561	0.520	0.499	0.489	0.478	0.523	6.27	A	0.0627	0.0000	0.5226	0.0000
5)	I	Acenaphthene-d10	----------ISTD----------														
6)	CP	Dibenzofuran	1.855	1.646	1.595	1.674	1.561	1.494	1.545	1.580	1.619	6.85#	A	0.0685	0.0000	1.6187	0.0000
7)	S	2-Fluorobiphenyl	1.505	1.419	1.418	1.499	1.403	1.331	1.331	1.257	1.395	6.13	A	0.0613	0.0000	1.3953	0.0000
8)	CP	Acenaphthylene	1.909	1.776	1.725	1.858	1.776	1.710	1.719	1.699	1.771	4.29	A	0.0429	0.0000	1.7714	0.0000
9)	CP	Acenaphthene	1.094	1.023	0.977	1.046	1.046	1.000	1.006	1.015	1.026	3.51	A	0.0351	0.0000	1.0259	0.0000
10)	CP	Fluorene	1.255	1.199	1.247	1.317	1.265	1.228	1.349	1.457	1.290	6.43	A	0.0643	0.0000	1.2896	0.0000
11)	I	Phenanthrene-d10	----------ISTD----------														
12)	CP	Phenanthrene	1.053	0.952	0.964	1.011	0.939	0.892	0.894	0.882	0.948	6.41	A	0.0641	0.0000	0.9483	0.0000
13)	CP	Anthracene	1.058	0.990	1.011	1.126	1.000	0.942	0.934	0.923	0.998	6.90	A	0.0690	0.0000	0.9979	0.0000
14)	CP	Fluoranthene	1.205	1.113	1.161	1.264	1.157	1.075	1.023	0.994	1.124	8.12	A	0.0812	0.0000	1.1239	0.0000
15)	CP	Pyrene	1.253	1.151	1.189	1.277	1.155	1.066	1.023	1.001	1.140	8.94	A	0.0894	0.0000	1.1396	0.0000
16)	S	4-Terphenyl-d14	1.010	0.954	0.994	1.028	0.963	0.903	0.855	0.845	0.944	7.36	A	0.0736	0.0000	0.9440	0.0000
17)	I	Chrysene-d12	----------ISTD----------														
18)	CP	Benzo[a]anthra...	0.947	0.855	0.875	0.990	0.923	0.876	0.891	0.855	0.902	5.32	A	0.0532	0.0000	0.9016	0.0000
19)	CP	Chrysene	0.947	0.853	0.845	0.946	0.876	0.826	0.841	0.805	0.867	6.08	A	0.0608	0.0000	0.8673	0.0000
20)	I	Perylene-d12	----------ISTD----------														
21)	CP	Benzo[b]fluora...	0.973	0.828	0.891	1.032	0.948	0.917	0.914	0.883	0.923	6.71	A	0.0671	0.0000	0.9234	0.0000
22)	CP	Benzo[k]fluora...	0.907	0.808	0.852	0.933	0.865	0.858	0.833	0.721	0.847	7.59	A	0.0759	0.0000	0.8471	0.0000
23)	CP	Benzo(j)fluora...	0.829	0.817	0.829	0.855	0.825	0.798	0.801	0.759	0.814	3.49	A	0.0349	0.0000	0.8141	0.0000
24)	T	Benzo[e]pyrene	0.975	0.872	0.898	0.928	0.898	0.875	0.887	0.836	0.896	4.63	A	0.0463	0.0000	0.8961	0.0000
25)	CP	Benzo[a]pyrene	0.935	0.858	0.875	0.982	0.895	0.872	0.887	0.833	0.892	5.25	A	0.0525	0.0000	0.8922	0.0000
26)	CP	Dibenz[a,h]ant...	0.893	0.809	0.838	0.933	0.879	0.864	0.878	0.812	0.863	4.86	A	0.0486	0.0000	0.8634	0.0000
27)	CP	Indeno[1,2,3-c...	1.061	0.963	0.998	1.125	1.039	1.019	1.033	0.957	1.025	5.33	A	0.0533	0.0000	1.0246	0.0000
28)	CP	Benzo[g,h,i]pe...	0.926	0.814	0.832	0.928	0.863	0.850	0.863	0.790	0.858	5.73	A	0.0573	0.0000	0.8581	0.0000

(#) = Out of Range

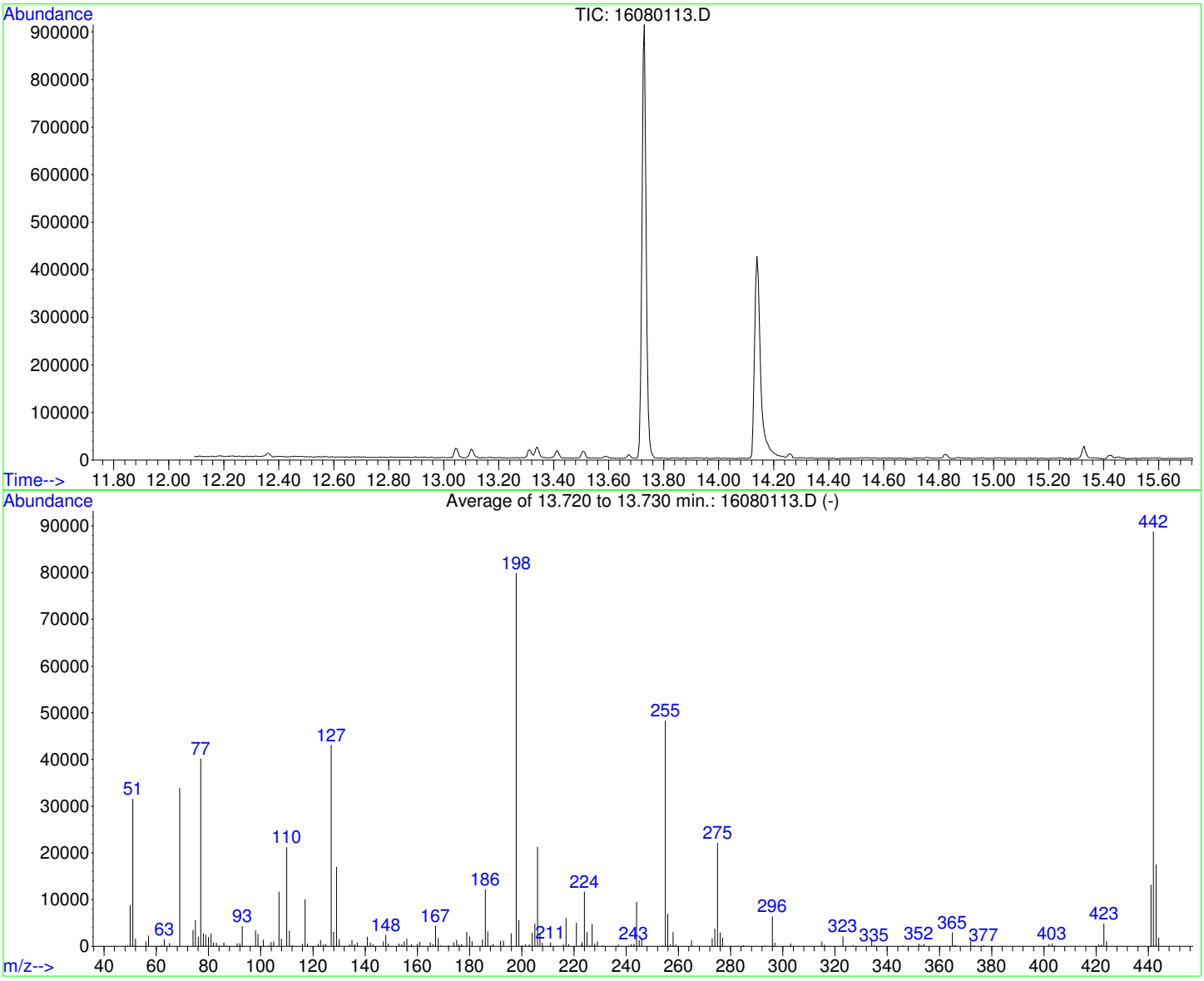
Sequence Name: C:\HPCHEM\1\SEQUENCE\160801.S
Comment:
Operator: DEW
Data Path: C:\HPCHEM\1\DATA\160801\
Pre-Seq Cmd:
Post-Seq Cmd:

Method Sections To Run
(X) Full Method
( ) Reprocessing Only

On A Barcode Mismatch
(X) Inject Anyway
( ) Don't Inject

Line	Type	Vial	DataFile	Method	Sample Name
1	Sample	1	16080101	PP160725	SBLK
2	Sample	2	16080102	DFTPPPAH	DFTPP-160801
3	Sample	3	16080103	PP160725	ICV-160801
4	Sample	4	16080104	PP160725	ICV-160801
5	Sample	5	16080105	PP160725	SB-160801
6	Sample	6	16080106	PP160725	1607269-12B
7					

Data File : C:\HPCHEM\1\DATA\160801\16080113.D Vial: 2
Acq On : 1 Aug 2016 6:30 pm Operator: DEW
Sample : DFTPP-160801 Inst : GC/MS #6
Misc : TUNE Multiplr: 5.00
MS Integration Params: RTEINT.P
Method : C:\HPCHEM\1\METHODS\DFTPPPAH.M (RTE Integrator)
Title : PAH Calibration



AutoFind: Scans 347, 348, 349; Background Corrected with Scan 341

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	10	80	39.5	31591	PASS
68	69	0.00	2	0.0	0	PASS
69	198	0.00	100	42.4	33861	PASS
70	69	0.00	2	0.0	0	PASS
127	198	10	80	53.9	43101	PASS
197	198	0.00	2	0.0	0	PASS
198	198	100	100	100.0	79947	PASS
199	198	5	9	7.0	5582	PASS
275	198	10	60	27.7	22112	PASS
365	198	1	200	3.7	2989	PASS
441	442	0.01	24	14.9	13202	PASS
442	198	50	400	111.1	88832	PASS
443	442	15	24	19.8	17564	PASS

REVIEWED/APPROVED
By Sherri Herschmann at 9:24:00 AM, 8/10/2016

Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160801\16080115.D Vial: 3
Acq On : 1 Aug 2016 7:50 pm Operator: DEW
Sample : CAL1 (5 ppb) Inst : GC/MS #6
Misc : CAL1 Multiplr: 5.00
MS Integration Params: RTEINT.P
Quant Time: Aug 2 9:43 2016 Quant Results File: PP160801.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration
DataAcq Meth : PP160725

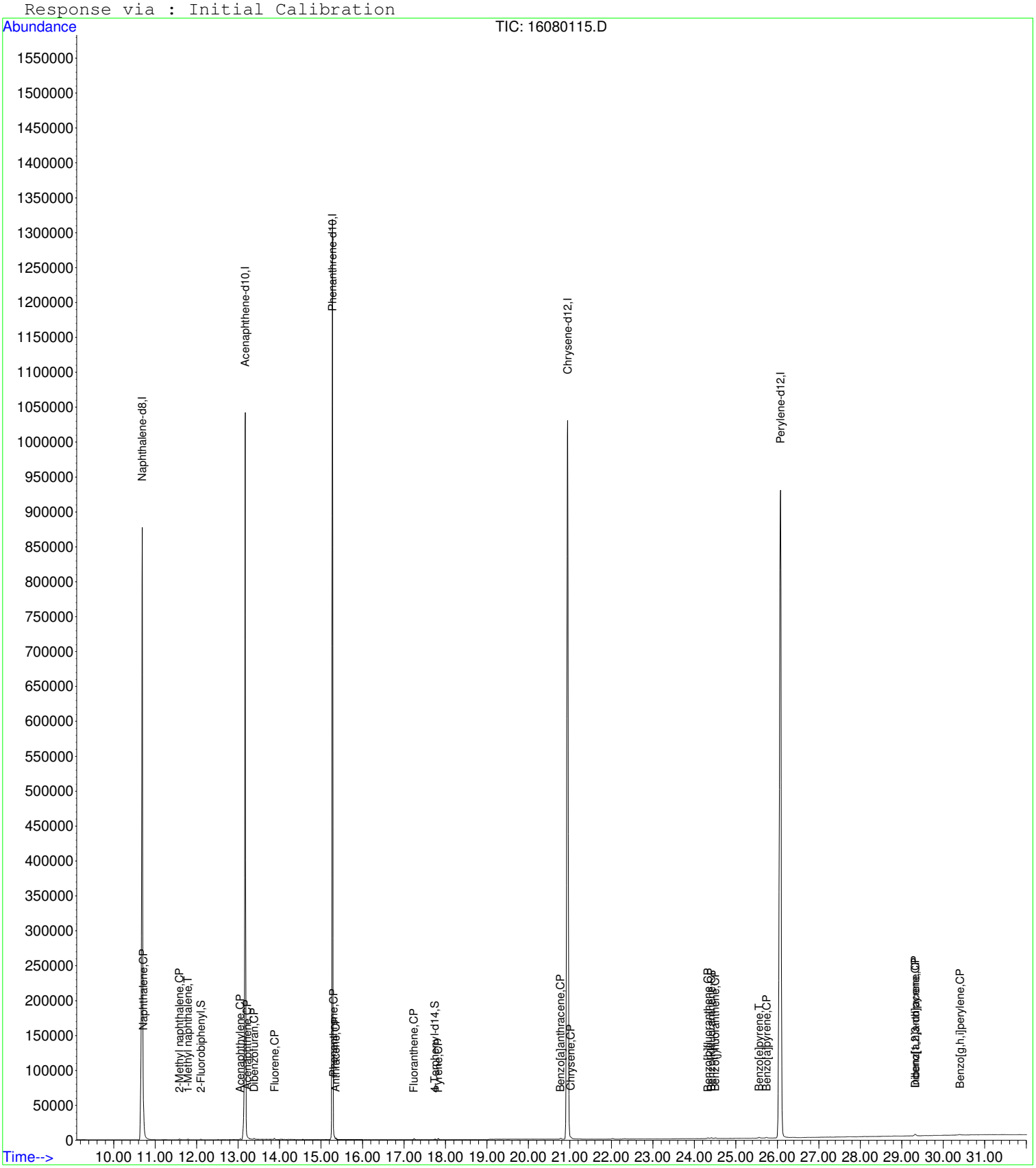
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.69	136	1503719	4000.00	ug/kg	107
5) Acenaphthene-d10	13.17	164	680588	4000.00	ug/kg	114
11) Phenanthrene-d10	15.28	188	1532486	4000.00	ug/kg	96
17) Chrysene-d12	20.95	240	1863885	4000.00	ug/kg	102
20) Perylene-d12	26.08	264	1934687	4000.00	ug/kg	100
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.10	172	1280	5.39	ug/kg	0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery =	0.13%#		
16) 4-Terphenyl-d14	17.74	244	1935	5.35	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	0.13%#		
Target Compounds						Qvalue
2) Naphthalene	10.72	128	1997	5.84	ug/kg	99
3) 2-Methyl naphthalene	11.59	142	1234	5.56	ug/kg	96
4) 1-Methyl naphthalene	11.79	142	1069	5.44	ug/kg	98
6) Dibenzofuran	13.39	168	1578	5.73	ug/kg	92
8) Acenaphthylene	13.06	152	1624	5.39	ug/kg	95
9) Acenaphthene	13.22	154	931	5.33	ug/kg	89
10) Fluorene	13.87	166	1068	4.87	ug/kg	99
12) Phenanthrene	15.31	178	2017	5.55	ug/kg	96
13) Anthracene	15.35	178	2027	5.30	ug/kg	98
14) Fluoranthene	17.24	202	2308	5.36	ug/kg	96
15) Pyrene	17.82	202	2400	5.50	ug/kg	98
18) Benzo[a]anthracene	20.77	228	2207	5.25	ug/kg	92
19) Chrysene	21.02	228	2206	5.46	ug/kg	96
21) Benzo[b]fluoranthene	24.34	252	2354	5.27	ug/kg	99
22) Benzo[k]fluoranthene	24.41	252	2193	5.35	ug/kg	97
23) Benzo(j)fluoranthene	24.51	252	2005	5.09	ug/kg	90
24) Benzo[e]pyrene	25.56	252	2359	5.44	ug/kg	79
25) Benzo[a]pyrene	25.74	252	2262	5.24	ug/kg	98
26) Dibenz[a,h]anthracene	29.32	278	2159	5.17	ug/kg	93
27) Indeno[1,2,3-cd]pyrene	29.33	276	2567	5.18	ug/kg	90
28) Benzo[g,h,i]perylene	30.39	276	2240	5.40	ug/kg	98

(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160801\16080115.D Vial: 3
Acq On : 1 Aug 2016 7:50 pm Operator: DEW
Sample : CAL1 (5 ppb) Inst : GC/MS #6
Misc : CAL1 Multiplr: 5.00
MS Integration Params: RTEINT.P
Quant Time: Aug 2 9:43 2016 Quant Results File: PP160801.RES

Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160801\16080116.D Vial: 4
Acq On : 1 Aug 2016 8:32 pm Operator: DEW
Sample : CAL2 (10 ppb) Inst : GC/MS #6
Misc : CAL Multiplr: 5.00
MS Integration Params: RTEINT.P
Quant Time: Aug 2 9:43 2016 Quant Results File: PP160801.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration
DataAcq Meth : PP160725

Reprocessed low point.

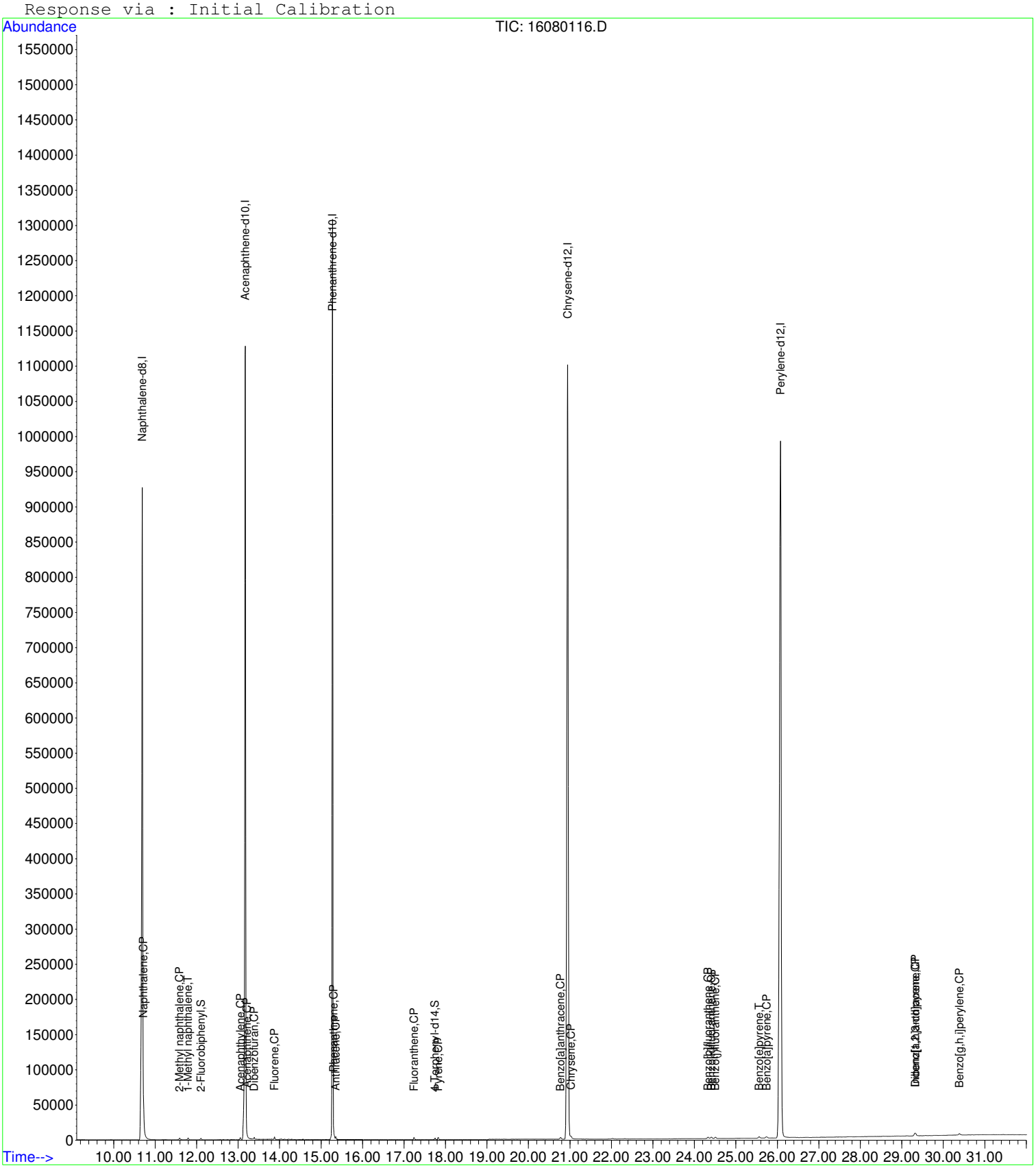
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.69	136	1613626	4000.00	ug/kg	115
5) Acenaphthene-d10	13.17	164	738139	4000.00	ug/kg	123
11) Phenanthrene-d10	15.28	188	1503918	4000.00	ug/kg	95
17) Chrysene-d12	20.95	240	1941488	4000.00	ug/kg	106
20) Perylene-d12	26.08	264	2020745	4000.00	ug/kg	105
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.10	172	2618	10.17	ug/kg	0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery = 0.25%#			
16) 4-Terphenyl-d14	17.74	244	3587	10.11	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 0.25%#			
Target Compounds						Qvalue
2) Naphthalene	10.72	128	3857	10.51	ug/kg	99
3) 2-Methyl naphthalene	11.59	142	2448	10.29	ug/kg	94
4) 1-Methyl naphthalene	11.79	142	2127	10.09	ug/kg	97
6) Dibenzofuran	13.39	168	3037	10.17	ug/kg	97
8) Acenaphthylene	13.05	152	3277	10.03	ug/kg	98
9) Acenaphthene	13.22	154	1887	9.97	ug/kg	98
10) Fluorene	13.87	166	2212	9.30	ug/kg	95
12) Phenanthrene	15.31	178	3581	10.04	ug/kg	99
13) Anthracene	15.35	178	3721	9.92	ug/kg	99
14) Fluoranthene	17.24	202	4183	9.90	ug/kg	96
15) Pyrene	17.82	202	4329	10.10	ug/kg	97
18) Benzo[a]anthracene	20.77	228	4152	9.49	ug/kg	99
19) Chrysene	21.02	228	4140	9.83	ug/kg	95
21) Benzo[b]fluoranthene	24.33	252	4184	8.97	ug/kg	91
22) Benzo[k]fluoranthene	24.41	252	4082	9.54	ug/kg	91
23) Benzo(j)fluoranthene	24.51	252	4125	10.03	ug/kg	96
24) Benzo[e]pyrene	25.56	252	4403	9.73	ug/kg	95
25) Benzo[a]pyrene	25.74	252	4335	9.62	ug/kg	97
26) Dibenz[a,h]anthracene	29.32	278	4089	9.37	ug/kg	98
27) Indeno[1,2,3-cd]pyrene	29.32	276	4864	9.40	ug/kg	97
28) Benzo[g,h,i]perylene	30.39	276	4112	9.49	ug/kg	98

(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160801\16080116.D Vial: 4
Acq On : 1 Aug 2016 8:32 pm Operator: DEW
Sample : CAL2 (10 ppb) Inst : GC/MS #6
Misc : CAL Multiplr: 5.00
MS Integration Params: RTEINT.P
Quant Time: Aug 2 9:43 2016 Quant Results File: PP160801.RES

Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160801\16080117.D Vial: 5
Acq On : 1 Aug 2016 9:11 pm Operator: DEW
Sample : CAL3 (50 ppb) Inst : GC/MS #6
Misc : CAL Multiplr: 5.00
MS Integration Params: RTEINT.P
Quant Time: Aug 2 9:43 2016 Quant Results File: PP160801.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration
DataAcq Meth : PP160725

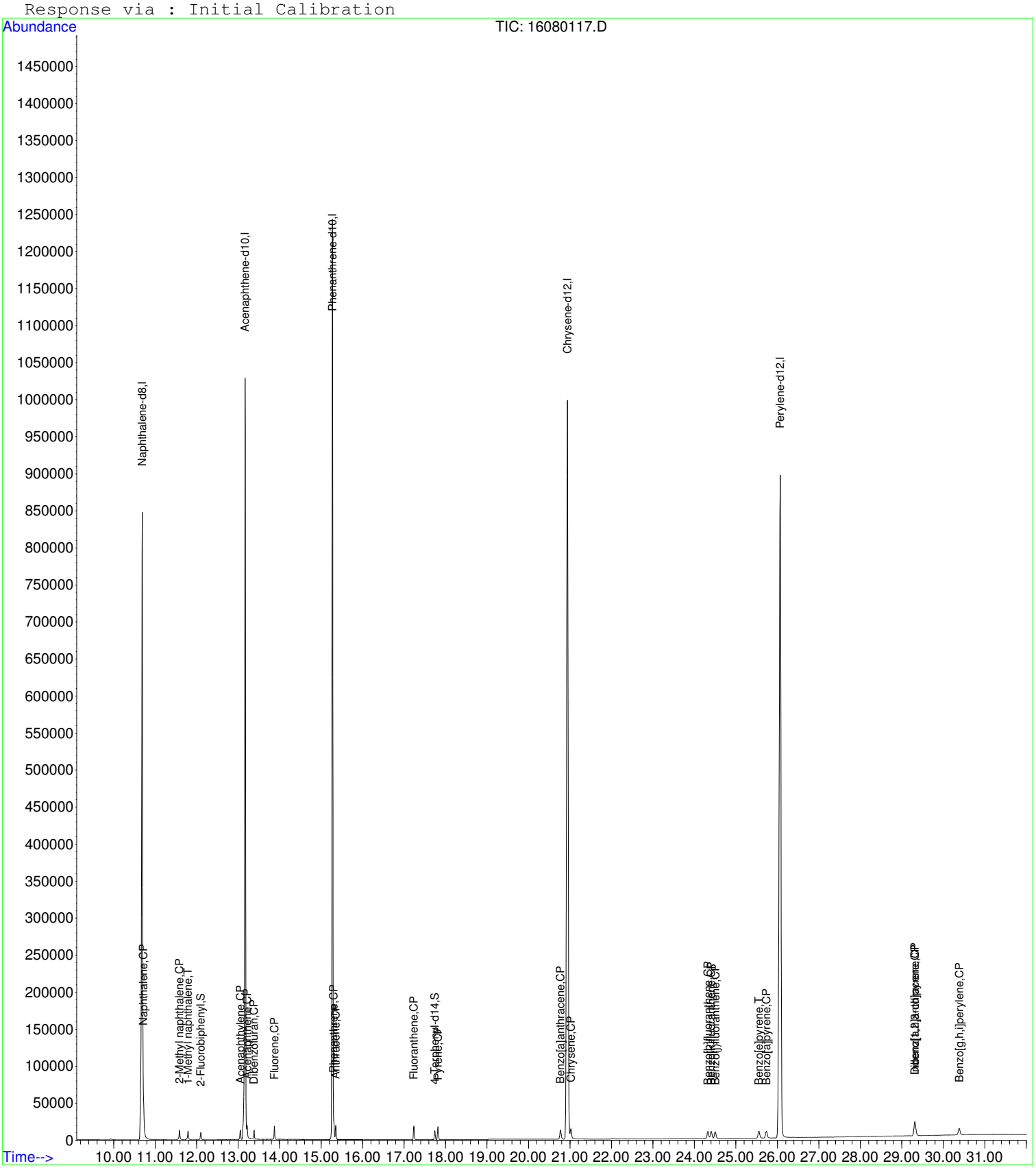
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.69	136	1483617	4000.00	ug/kg	106
5) Acenaphthene-d10	13.17	164	671495	4000.00	ug/kg	112
11) Phenanthrene-d10	15.27	188	1461166	4000.00	ug/kg	92
17) Chrysene-d12	20.94	240	1828455	4000.00	ug/kg	100
20) Perylene-d12	26.07	264	1813783	4000.00	ug/kg	94
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.10	172	11900	50.81	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.27%#		
16) 4-Terphenyl-d14	17.74	244	18151	52.64	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.32%#		
Target Compounds						Qvalue
2) Naphthalene	10.72	128	16729	49.56	ug/kg	99
3) 2-Methyl naphthalene	11.59	142	11175	51.07	ug/kg	98
4) 1-Methyl naphthalene	11.79	142	9975	51.46	ug/kg	99
6) Dibenzofuran	13.38	168	13386	49.26	ug/kg	99
8) Acenaphthylene	13.05	152	14476	48.68	ug/kg	99
9) Acenaphthene	13.22	154	8199	47.61	ug/kg	98
10) Fluorene	13.87	166	10463	48.33	ug/kg	99
12) Phenanthrene	15.31	178	17603	50.81	ug/kg	98
13) Anthracene	15.35	178	18474	50.68	ug/kg	98
14) Fluoranthene	17.24	202	21208	51.66	ug/kg	98
15) Pyrene	17.82	202	21714	52.16	ug/kg	98
18) Benzo[a]anthracene	20.77	228	20007	48.55	ug/kg	98
19) Chrysene	21.02	228	19314	48.71	ug/kg	100
21) Benzo[b]fluoranthene	24.33	252	20206	48.26	ug/kg	99
22) Benzo[k]fluoranthene	24.40	252	19325	50.31	ug/kg	97
23) Benzo(j)fluoranthene	24.51	252	18806	50.94	ug/kg	99
24) Benzo[e]pyrene	25.55	252	20368	50.13	ug/kg	98
25) Benzo[a]pyrene	25.73	252	19849	49.06	ug/kg	99
26) Dibenz[a,h]anthracene	29.32	278	19000	48.53	ug/kg	98
27) Indeno[1,2,3-cd]pyrene	29.32	276	22630	48.71	ug/kg	96
28) Benzo[g,h,i]perylene	30.39	276	18855	48.46	ug/kg	100

(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160801\16080117.D Vial: 5
Acq On : 1 Aug 2016 9:11 pm Operator: DEW
Sample : CAL3 (50 ppb) Inst : GC/MS #6
Misc : CAL Multiplr: 5.00
MS Integration Params: RTEINT.P
Quant Time: Aug 2 9:43 2016 Quant Results File: PP160801.RES

Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160801\16080118.D Vial: 6
Acq On : 1 Aug 2016 9:51 pm Operator: DEW
Sample : CAL4 (100 ppb) Inst : GC/MS #6
Misc : CAL Multiplr: 5.00
MS Integration Params: RTEINT.P
Quant Time: Aug 2 9:44 2016 Quant Results File: PP160801.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration
DataAcq Meth : PP160725

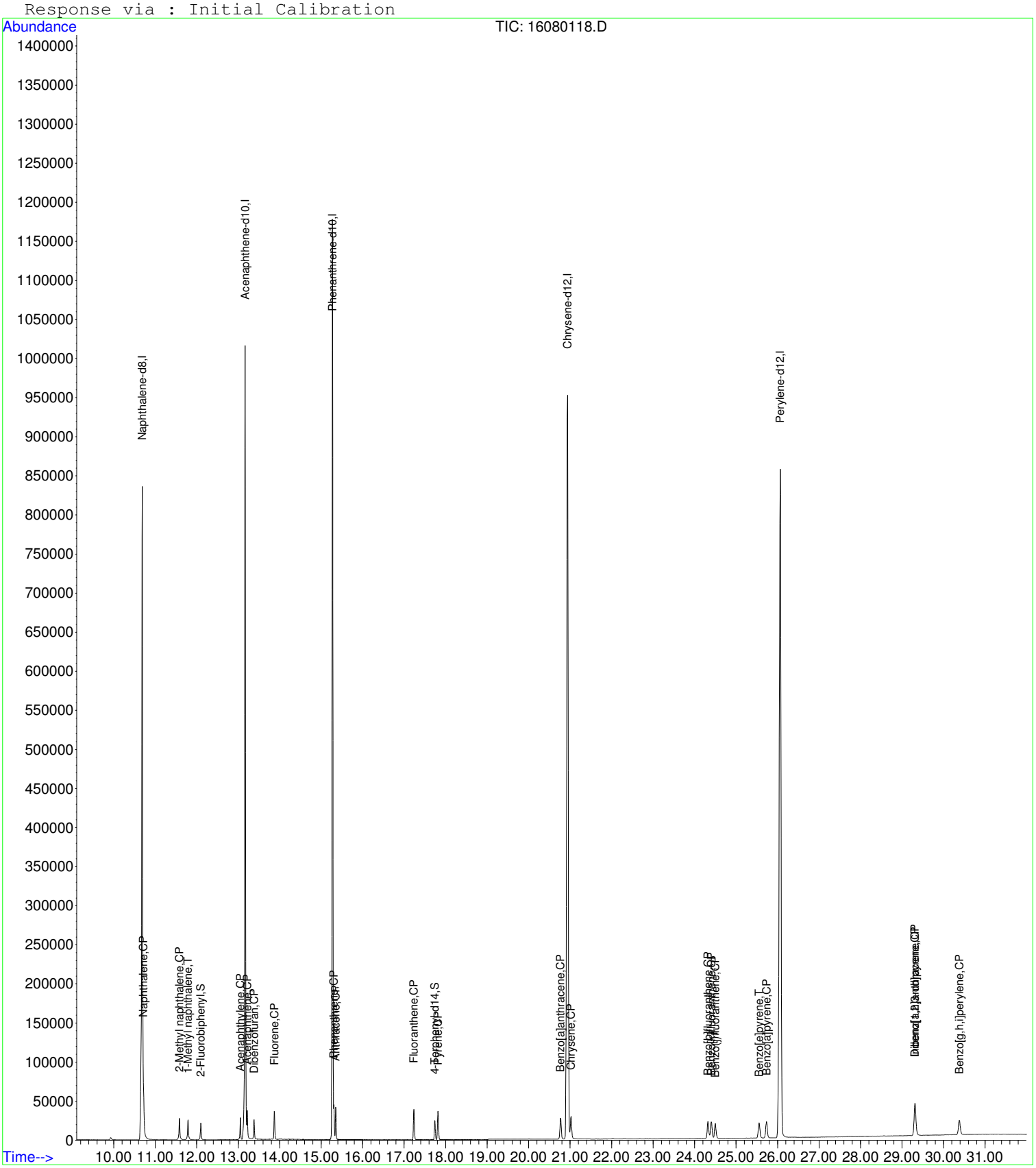
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.69	136	1417424	4000.00	ug/kg	101
5) Acenaphthene-d10	13.17	164	638853	4000.00	ug/kg	107
11) Phenanthrene-d10	15.27	188	1381998	4000.00	ug/kg	87
17) Chrysene-d12	20.94	240	1743437	4000.00	ug/kg	95
20) Perylene-d12	26.06	264	1747505	4000.00	ug/kg	91
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.10	172	23943	107.44	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.69%#		
16) 4-Terphenyl-d14	17.74	244	35511	108.88	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.72%#		
Target Compounds						Qvalue
2) Naphthalene	10.72	128	33760	104.68	ug/kg	99
3) 2-Methyl naphthalene	11.59	142	22472	107.49	ug/kg	99
4) 1-Methyl naphthalene	11.79	142	19870	107.30	ug/kg	99
6) Dibenzofuran	13.38	168	26743	103.44	ug/kg	100
8) Acenaphthylene	13.05	152	29673	104.89	ug/kg	98
9) Acenaphthene	13.22	154	16709	101.98	ug/kg	100
10) Fluorene	13.87	166	21036	102.14	ug/kg	99
12) Phenanthrene	15.31	178	34943	106.65	ug/kg	98
13) Anthracene	15.35	178	38892	112.81	ug/kg	99
14) Fluoranthene	17.23	202	43667	112.46	ug/kg	99
15) Pyrene	17.82	202	44128	112.08	ug/kg	100
18) Benzo[a]anthracene	20.77	228	43135	109.77	ug/kg	99
19) Chrysene	21.02	228	41212	109.01	ug/kg	99
21) Benzo[b]fluoranthene	24.32	252	45107	111.81	ug/kg	99
22) Benzo[k]fluoranthene	24.40	252	40745	110.09	ug/kg	99
23) Benzo(j)fluoranthene	24.50	252	37339	104.98	ug/kg	97
24) Benzo[e]pyrene	25.55	252	40550	103.58	ug/kg	100
25) Benzo[a]pyrene	25.73	252	42902	110.06	ug/kg	98
26) Dibenz[a,h]anthracene	29.31	278	40760	108.06	ug/kg	99
27) Indeno[1,2,3-cd]pyrene	29.32	276	49167	109.84	ug/kg	95
28) Benzo[g,h,i]perylene	30.38	276	40533	108.12	ug/kg	99

(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160801\16080118.D Vial: 6
Acq On : 1 Aug 2016 9:51 pm Operator: DEW
Sample : CAL4 (100 ppb) Inst : GC/MS #6
Misc : CAL Multiplr: 5.00
MS Integration Params: RTEINT.P
Quant Time: Aug 2 9:44 2016 Quant Results File: PP160801.RES

Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160801\16080119.D Vial: 7
Acq On : 1 Aug 2016 10:31 pm Operator: DEW
Sample : CAL5 (500 ppb) Inst : GC/MS #6
Misc : CAL Multiplr: 5.00
MS Integration Params: RTEINT.P
Quant Time: Aug 2 9:44 2016 Quant Results File: PP160801.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration
DataAcq Meth : PP160725

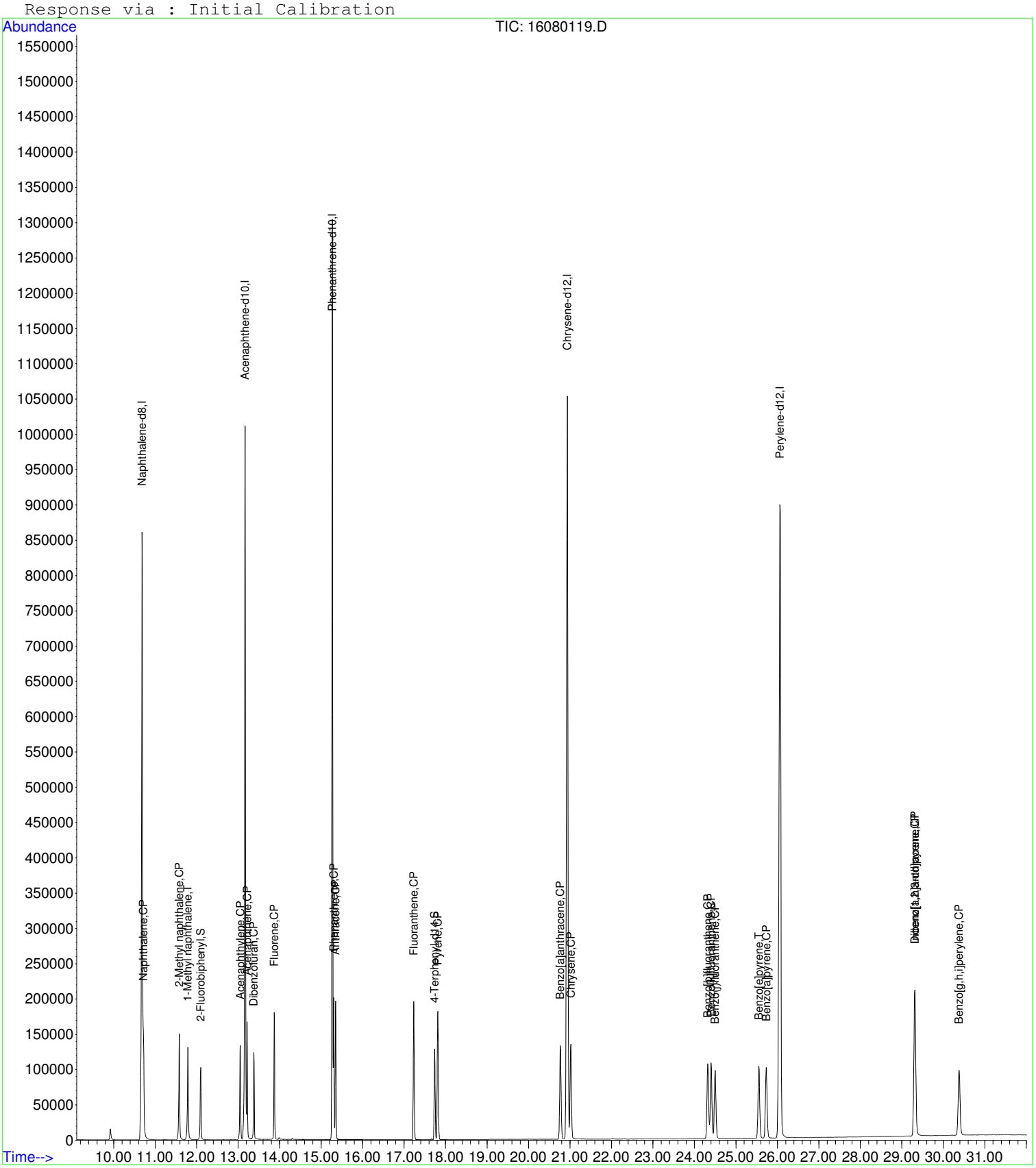
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.68	136	1438697	4000.00	ug/kg	103
5) Acenaphthene-d10	13.17	164	632331	4000.00	ug/kg	105
11) Phenanthrene-d10	15.27	188	1502812	4000.00	ug/kg	94
17) Chrysene-d12	20.94	240	1837823	4000.00	ug/kg	100
20) Perylene-d12	26.06	264	1862883	4000.00	ug/kg	97
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.10	172	110883	502.72	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 12.57%#			
16) 4-Terphenyl-d14	17.74	244	180912	510.12	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 12.75%#			
Target Compounds						Qvalue
2) Naphthalene	10.72	128	157338	480.66	ug/kg	99
3) 2-Methyl naphthalene	11.58	142	104597	492.90	ug/kg	98
4) 1-Methyl naphthalene	11.79	142	93561	497.76	ug/kg	97
6) Dibenzofuran	13.38	168	123371	482.11	ug/kg	100
8) Acenaphthylene	13.05	152	140359	501.25	ug/kg	99
9) Acenaphthene	13.22	154	82644	509.59	ug/kg	98
10) Fluorene	13.87	166	99953	490.30	ug/kg	100
12) Phenanthrene	15.30	178	176305	494.83	ug/kg	99
13) Anthracene	15.35	178	187904	501.21	ug/kg	99
14) Fluoranthene	17.23	202	217298	514.64	ug/kg	99
15) Pyrene	17.81	202	217006	506.86	ug/kg	99
18) Benzo[a]anthracene	20.77	228	212082	511.98	ug/kg	99
19) Chrysene	21.02	228	201242	504.99	ug/kg	100
21) Benzo[b]fluoranthene	24.32	252	220851	513.54	ug/kg	100
22) Benzo[k]fluoranthene	24.40	252	201349	510.35	ug/kg	99
23) Benzo(j)fluoranthene	24.50	252	192031	506.48	ug/kg	99
24) Benzo[e]pyrene	25.55	252	208998	500.78	ug/kg	99
25) Benzo[a]pyrene	25.73	252	208397	501.53	ug/kg	100
26) Dibenz[a,h]anthracene	29.31	278	204642	508.93	ug/kg	99
27) Indeno[1,2,3-cd]pyrene	29.32	276	241930	507.01	ug/kg	98
28) Benzo[g,h,i]perylene	30.39	276	200928	502.75	ug/kg	99

(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160801\16080119.D Vial: 7
Acq On : 1 Aug 2016 10:31 pm Operator: DEW
Sample : CAL5 (500 ppb) Inst : GC/MS #6
Misc : CAL Multiplr: 5.00
MS Integration Params: RTEINT.P
Quant Time: Aug 2 9:44 2016 Quant Results File: PP160801.RES

Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160801\16080120.D Vial: 8
Acq On : 1 Aug 2016 11:11 pm Operator: DEW
Sample : CAL6 (1000 ppb) Inst : GC/MS #6
Misc : CAL Multiplr: 5.00
MS Integration Params: RTEINT.P
Quant Time: Aug 2 9:44 2016 Quant Results File: PP160801.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration
DataAcq Meth : PP160725

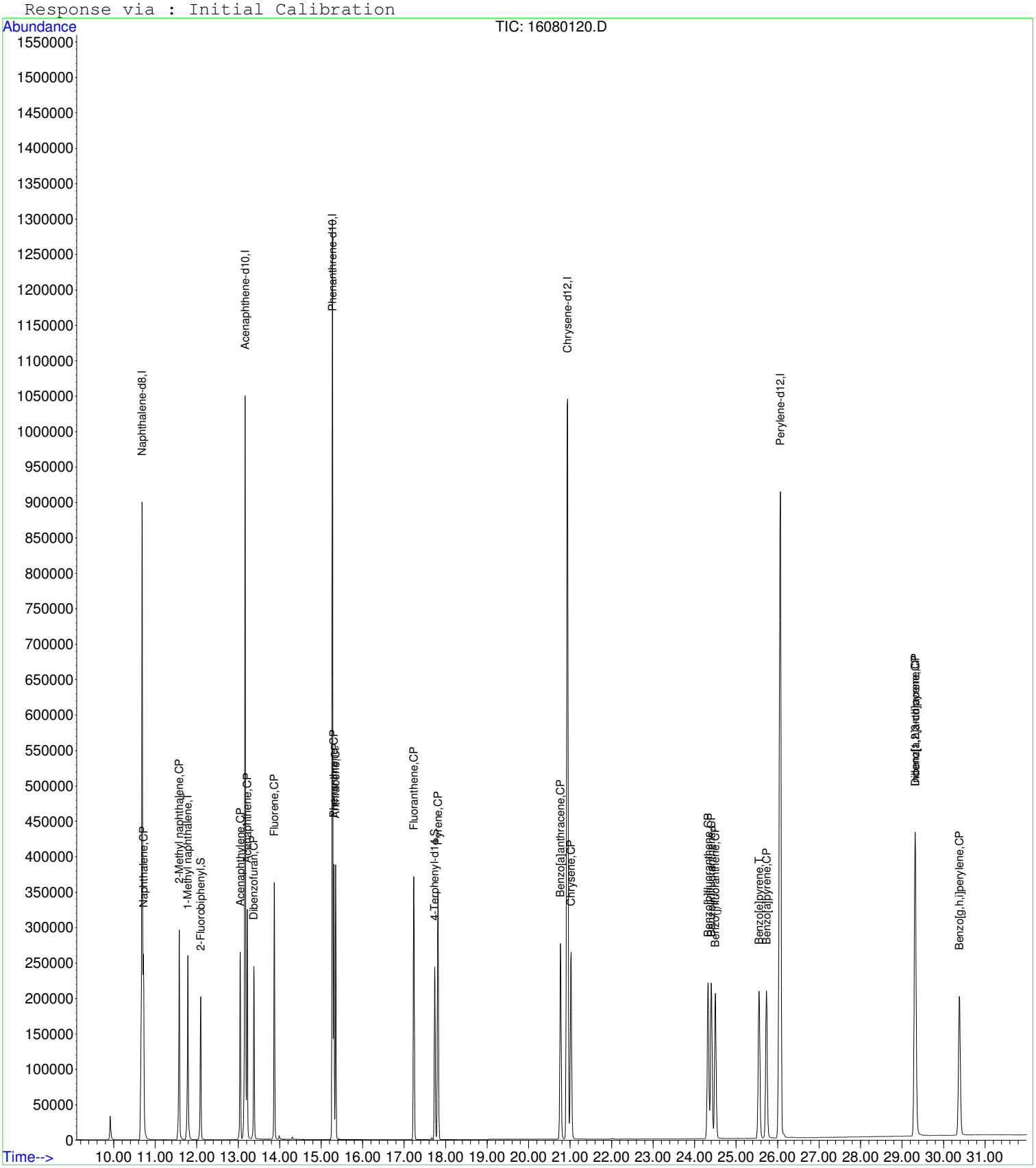
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.68	136	1499252	4000.00	ug/kg	107
5) Acenaphthene-d10	13.17	164	657692	4000.00	ug/kg	110
11) Phenanthrene-d10	15.27	188	1538575	4000.00	ug/kg	97
17) Chrysene-d12	20.94	240	1921341	4000.00	ug/kg	105
20) Perylene-d12	26.07	264	1969102	4000.00	ug/kg	102
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.10	172	218820	953.83	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	23.85%#		
16) 4-Terphenyl-d14	17.74	244	347243	956.36	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	23.91%#		
Target Compounds						Qvalue
2) Naphthalene	10.72	128	314807	922.87	ug/kg	100
3) 2-Methyl naphthalene	11.58	142	208479	942.76	ug/kg	99
4) 1-Methyl naphthalene	11.79	142	186882	954.08	ug/kg	98
6) Dibenzofuran	13.38	168	245676	923.04	ug/kg	100
8) Acenaphthylene	13.05	152	281204	965.50	ug/kg	100
9) Acenaphthene	13.22	154	164497	975.20	ug/kg	99
10) Fluorene	13.87	166	201948	952.42	ug/kg	100
12) Phenanthrene	15.30	178	342999	940.32	ug/kg	100
13) Anthracene	15.35	178	362165	943.57	ug/kg	99
14) Fluoranthene	17.23	202	413506	956.56	ug/kg	99
15) Pyrene	17.81	202	410166	935.76	ug/kg	100
18) Benzo[a]anthracene	20.77	228	420793	971.67	ug/kg	99
19) Chrysene	21.02	228	396650	952.07	ug/kg	99
21) Benzo[b]fluoranthene	24.33	252	451182	992.53	ug/kg	99
22) Benzo[k]fluoranthene	24.40	252	422580	1013.31	ug/kg	100
23) Benzo(j)fluoranthene	24.50	252	392898	980.36	ug/kg	99
24) Benzo[e]pyrene	25.55	252	430721	976.39	ug/kg	99
25) Benzo[a]pyrene	25.73	252	429307	977.43	ug/kg	100
26) Dibenz[a,h]anthracene	29.32	278	425555	1001.23	ug/kg	100
27) Indeno[1,2,3-cd]pyrene	29.32	276	501658	994.61	ug/kg	96
28) Benzo[g,h,i]perylene	30.38	276	418580	990.85	ug/kg	99

(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160801\16080120.D Vial: 8
Acq On : 1 Aug 2016 11:11 pm Operator: DEW
Sample : CAL6 (1000 ppb) Inst : GC/MS #6
Misc : CAL Multiplr: 5.00
MS Integration Params: RTEINT.P
Quant Time: Aug 2 9:44 2016 Quant Results File: PP160801.RES

Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160801\16080121.D Vial: 9
Acq On : 1 Aug 2016 11:50 pm Operator: DEW
Sample : CAL7 (2000 ppb) Inst : GC/MS #6
Misc : CAL Multiplr: 5.00
MS Integration Params: RTEINT.P
Quant Time: Aug 2 9:44 2016 Quant Results File: PP160801.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration
DataAcq Meth : PP160725

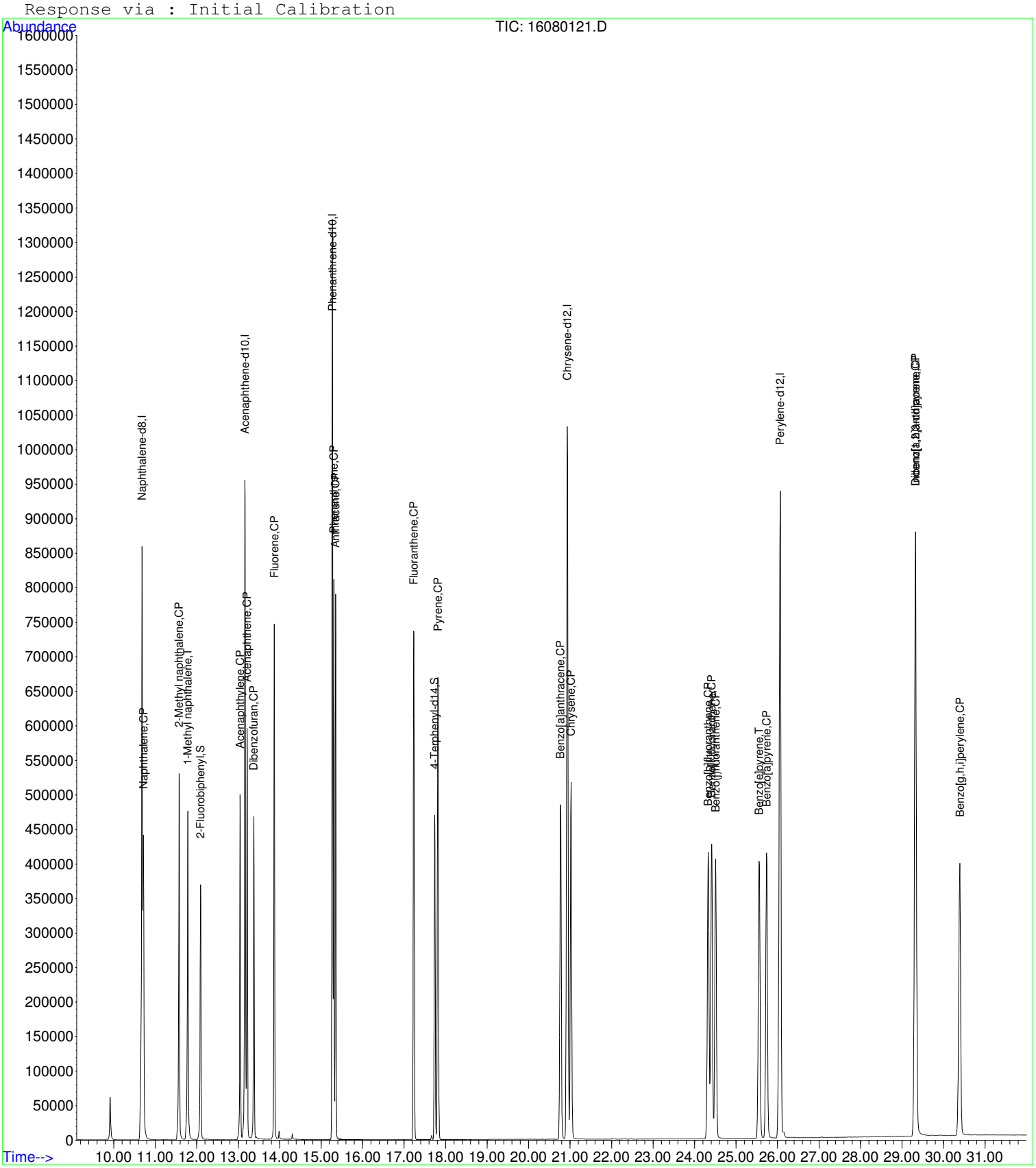
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.68	136	1403212	4000.00	ug/kg	100
5) Acenaphthene-d10	13.16	164	599493	4000.00	ug/kg	100
11) Phenanthrene-d10	15.27	188	1590654	4000.00	ug/kg	100
17) Chrysene-d12	20.93	240	1834195	4000.00	ug/kg	100
20) Perylene-d12	26.06	264	1928719	4000.00	ug/kg	100
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.09	172	398885	1907.53	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	47.69%		
16) 4-Terphenyl-d14	17.74	244	679973	1811.44	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	45.29%		
Target Compounds						Qvalue
2) Naphthalene	10.72	128	591164	1851.64	ug/kg	100
3) 2-Methyl naphthalene	11.58	142	381572	1843.59	ug/kg	100
4) 1-Methyl naphthalene	11.79	142	343340	1872.80	ug/kg	100
6) Dibenzofuran	13.38	168	463067	1908.71	ug/kg	100
8) Acenaphthylene	13.05	152	515239	1940.79	ug/kg	100
9) Acenaphthene	13.21	154	301528	1961.11	ug/kg	100
10) Fluorene	13.87	166	404242	2091.56	ug/kg	100
12) Phenanthrene	15.30	178	710635	1884.39	ug/kg	100
13) Anthracene	15.35	178	742459	1871.03	ug/kg	100
14) Fluoranthene	17.23	202	813605	1820.49	ug/kg	100
15) Pyrene	17.81	202	813802	1795.83	ug/kg	100
18) Benzo[a]anthracene	20.77	228	817037	1976.30	ug/kg	100
19) Chrysene	21.02	228	771703	1940.31	ug/kg	100
21) Benzo[b]fluoranthene	24.33	252	881066	1978.79	ug/kg	100
22) Benzo[k]fluoranthene	24.41	252	803567	1967.23	ug/kg	100
23) Benzo(j)fluoranthene	24.51	252	772683	1968.36	ug/kg	100
24) Benzo[e]pyrene	25.55	252	855110	1979.00	ug/kg	100
25) Benzo[a]pyrene	25.73	252	855355	1988.22	ug/kg	100
26) Dibenz[a,h]anthracene	29.32	278	847106	2034.76	ug/kg	100
27) Indeno[1,2,3-cd]pyrene	29.32	276	996633	2017.34	ug/kg	100
28) Benzo[g,h,i]perylene	30.39	276	831770	2010.17	ug/kg	100

(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160801\16080121.D Vial: 9
Acq On : 1 Aug 2016 11:50 pm Operator: DEW
Sample : CAL7 (2000 ppb) Inst : GC/MS #6
Misc : CAL Multiplr: 5.00
MS Integration Params: RTEINT.P
Quant Time: Aug 2 9:44 2016 Quant Results File: PP160801.RES

Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160801\16080122.D Vial: 10
Acq On : 2 Aug 2016 12:29 am Operator: DEW
Sample : CAL8 (5000 ppb) Inst : GC/MS #6
Misc : CAL Multiplr: 5.00
MS Integration Params: RTEINT.P
Quant Time: Aug 2 9:44 2016 Quant Results File: PP160801.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration
DataAcq Meth : PP160725

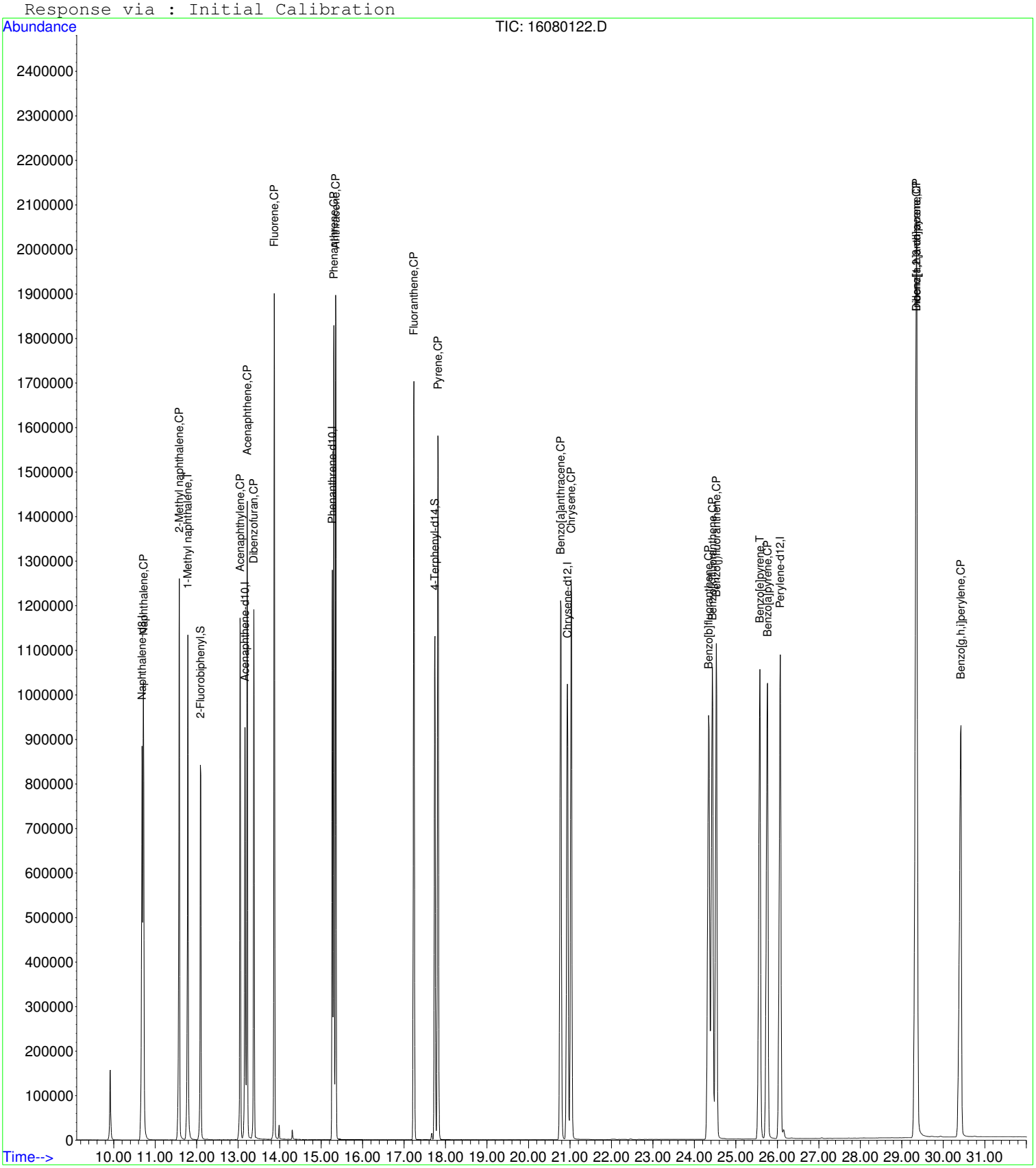
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.68	136	1300974	4000.00	ug/kg	93
5) Acenaphthene-d10	13.16	164	578980	4000.00	ug/kg	97
11) Phenanthrene-d10	15.27	188	1540055	4000.00	ug/kg	97
17) Chrysene-d12	20.94	240	1926331	4000.00	ug/kg	105
20) Perylene-d12	26.07	264	2158387	4000.00	ug/kg	112
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.09	172	910049	4506.18	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 112.65%			
16) 4-Terphenyl-d14	17.74	244	1626864	4476.35	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 111.91%			
Target Compounds						Qvalue
2) Naphthalene	10.72	128	1382400	4670.22	ug/kg	99
3) 2-Methyl naphthalene	11.58	142	875199	4560.89	ug/kg	99
4) 1-Methyl naphthalene	11.79	142	777314	4573.18	ug/kg	98
6) Dibenzofuran	13.38	168	1143687	4881.17	ug/kg	99
8) Acenaphthylene	13.05	152	1229331	4794.69	ug/kg	99
9) Acenaphthene	13.22	154	734765	4948.15	ug/kg	98
10) Fluorene	13.87	166	1054816	5651.02	ug/kg	99
12) Phenanthrene	15.31	178	1698584	4652.11	ug/kg	99
13) Anthracene	15.35	178	1776151	4623.05	ug/kg	99
14) Fluoranthene	17.24	202	1912825	4420.67	ug/kg	99
15) Pyrene	17.82	202	1927732	4393.72	ug/kg	99
18) Benzo[a]anthracene	20.77	228	2058265	4740.53	ug/kg	99
19) Chrysene	21.03	228	1938788	4641.58	ug/kg	99
21) Benzo[b]fluoranthene	24.34	252	2383619	4783.74	ug/kg	99
22) Benzo[k]fluoranthene	24.43	252	1945183	4255.32	ug/kg	99
23) Benzo(j)fluoranthene	24.53	252	2048212	4662.49	ug/kg	99
24) Benzo[e]pyrene	25.58	252	2256081	4665.72	ug/kg	99
25) Benzo[a]pyrene	25.76	252	2246996	4667.24	ug/kg	99
26) Dibenz[a,h]anthracene	29.35	278	2191792	4704.51	ug/kg	98
27) Indeno[1,2,3-cd]pyrene	29.36	276	2582958	4671.97	ug/kg	98
28) Benzo[g,h,i]perylene	30.42	276	2131025	4602.12	ug/kg	99

(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160801\16080122.D Vial: 10
Acq On : 2 Aug 2016 12:29 am Operator: DEW
Sample : CAL8 (5000 ppb) Inst : GC/MS #6
Misc : CAL Multiplr: 5.00
MS Integration Params: RTEINT.P
Quant Time: Aug 2 9:44 2016 Quant Results File: PP160801.RES

Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160801\16080123.D Vial: 11
Acq On : 2 Aug 2016 1:09 am Operator: DEW
Sample : SSCV (2500 ppb) Inst : GC/MS #6
Misc : ICV Multiplr: 5.00
MS Integration Params: RTEINT.P
Quant Time: Aug 2 9:44 2016 Quant Results File: PP160801.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration
DataAcq Meth : PP160725

Dibenzofuran and benzo(J)fluoranthene SSCV.

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.68	136	1325276	4000.00	ug/kg	94
5) Acenaphthene-d10	13.16	164	707178	4000.00	ug/kg	118
11) Phenanthrene-d10	15.27	188	1448385	4000.00	ug/kg	91
17) Chrysene-d12	20.93	240	1824407	4000.00	ug/kg	99
20) Perylene-d12	26.06	264	1845448	4000.00	ug/kg	96
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.10	172	49	0.20	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	0.01%#		
16) 4-Terphenyl-d14	17.74	244	223	0.65	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	0.02%#		
Target Compounds						Qvalue
2) Naphthalene	10.72	128	159	0.53	ug/kg	88
3) 2-Methyl naphthalene	11.58	142	146	0.75	ug/kg	83
4) 1-Methyl naphthalene	11.79	142	32	0.18	ug/kg	89
6) Dibenzofuran	13.38	168	646698	2259.71	ug/kg	100
8) Acenaphthylene	13.05	152	144	0.46	ug/kg	70
9) Acenaphthene	13.21	154	171	0.94	ug/kg	87
10) Fluorene	13.87	166	5788	25.39	ug/kg	99
12) Phenanthrene	15.30	178	1058	3.08	ug/kg	95
13) Anthracene	15.35	178	2627	7.27	ug/kg	96
14) Fluoranthene	17.23	202	1405	3.45	ug/kg	94
15) Pyrene	17.81	202	1483	3.59	ug/kg	99
18) Benzo[a]anthracene	20.77	228	3151	7.66	ug/kg	98
19) Chrysene	21.01	228	2940	7.43	ug/kg	99
21) Benzo[b]fluoranthene	0.00	252	0	N.D.		
22) Benzo[k]fluoranthene	24.50	252	927856	~~2374.00~~	~~ug/kg~~	~~96~~
23) Benzo(j)fluoranthene	24.50	252	935770	2491.38	ug/kg	100
24) Benzo[e]pyrene	25.55	252	6358	15.38	ug/kg	98
25) Benzo[a]pyrene	25.73	252	3099	7.53	ug/kg	97
26) Dibenz[a,h]anthracene	29.30	278	2935	7.37	ug/kg	92
27) Indeno[1,2,3-cd]pyrene	29.32	276	3735	7.90	ug/kg	98
28) Benzo[g,h,i]perylene	30.38	276	2800	7.07	ug/kg	96

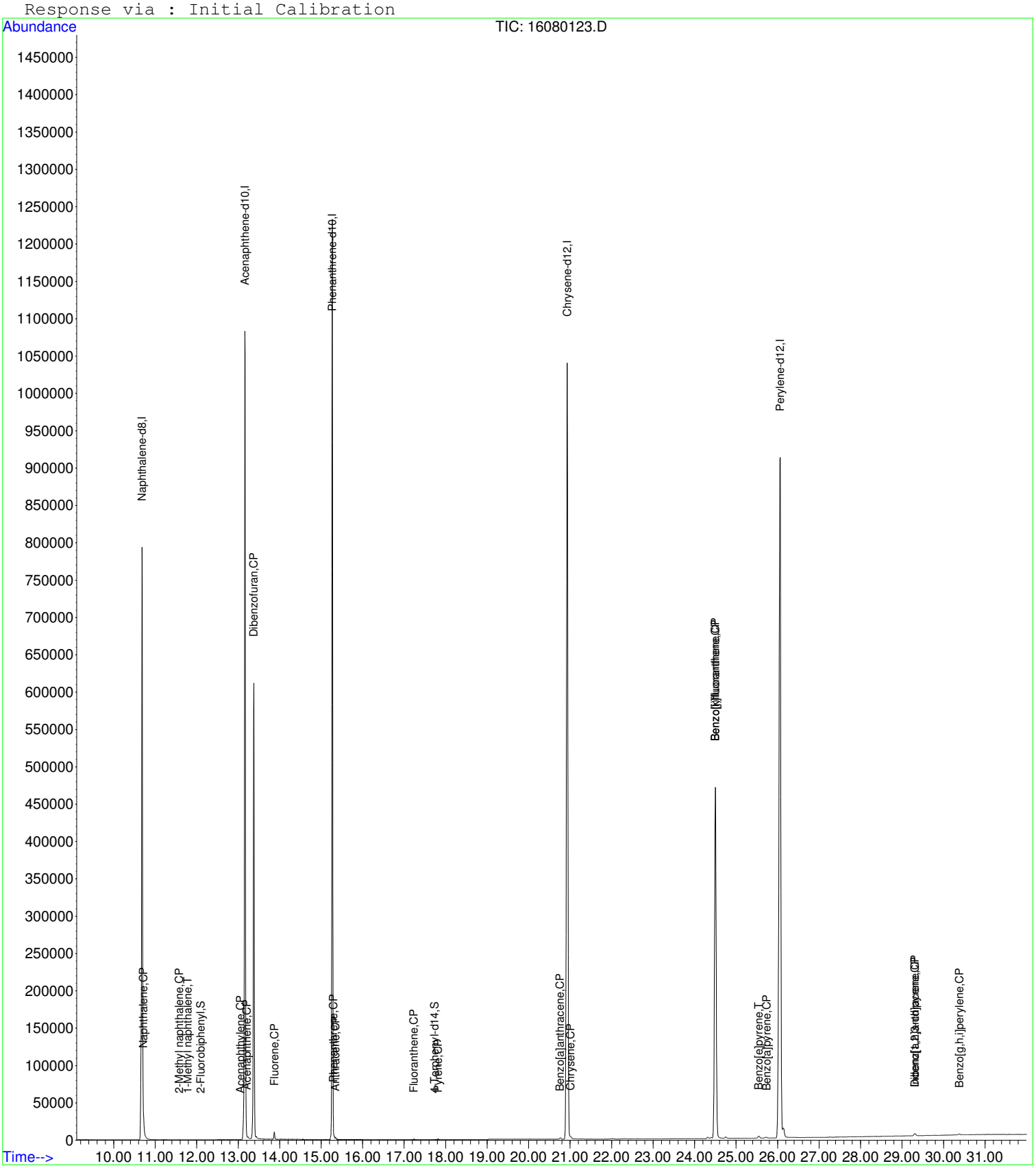
REVIEWED/APPROVED
By Sherri Herschmann at 9:39:32 AM, 8/10/2016

(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160801\16080123.D Vial: 11
Acq On : 2 Aug 2016 1:09 am Operator: DEW
Sample : SSCV (2500 ppb) Inst : GC/MS #6
Misc : ICV Multiplr: 5.00
MS Integration Params: RTEINT.P
Quant Time: Aug 2 9:44 2016 Quant Results File: PP160801.RES

Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160801\16080124.D Vial: 12
Acq On : 2 Aug 2016 1:49 am Operator: DEW
Sample : SSCV (2500 ppb) Inst : GC/MS #6
Misc : ICV Multiplr: 5.00
MS Integration Params: RTEINT.P
Quant Time: Aug 2 9:44 2016 Quant Results File: PP160801.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration
DataAcq Meth : PP160725

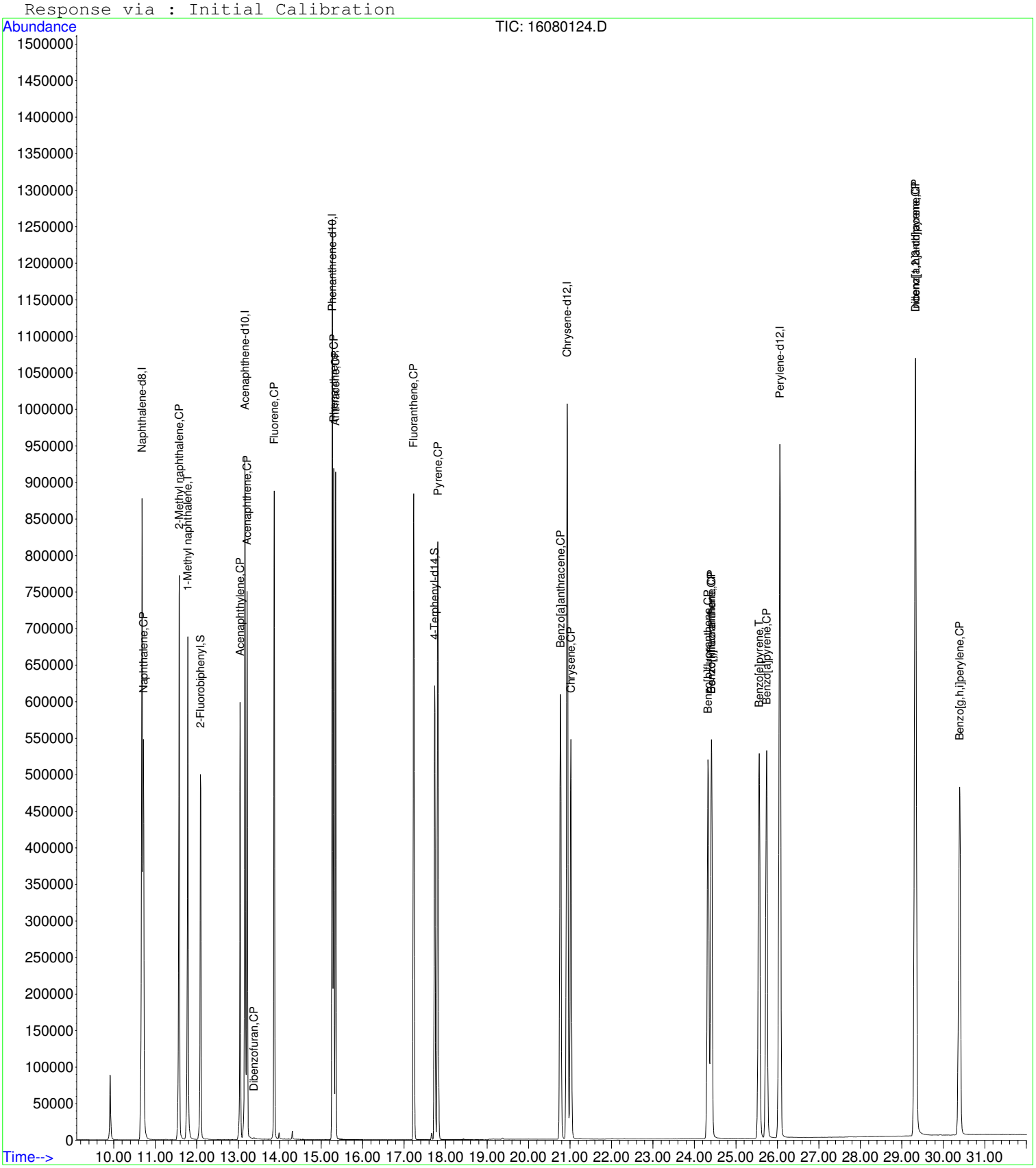
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.68	136	1382829	4000.00	ug/kg	99
5) Acenaphthene-d10	13.16	164	584199	4000.00	ug/kg	97
11) Phenanthrene-d10	15.27	188	1507995	4000.00	ug/kg	95
17) Chrysene-d12	20.93	240	1806763	4000.00	ug/kg	99
20) Perylene-d12	26.06	264	1922214	4000.00	ug/kg	100
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.09	172	535064	2625.74	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	65.64%		
16) 4-Terphenyl-d14	17.74	244	917932	2579.40	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	64.48%		
Target Compounds						Qvalue
2) Naphthalene	10.72	128	729433	2318.41	ug/kg	100
3) 2-Methyl naphthalene	11.58	142	557797	2734.76	ug/kg	100
4) 1-Methyl naphthalene	11.78	142	488333	2702.95	ug/kg	99
6) Dibenzofuran	13.38	168	1665	7.04	ug/kg	92
8) Acenaphthylene	13.05	152	618455	2390.57	ug/kg	100
9) Acenaphthene	13.21	154	377577	2520.01	ug/kg	99
10) Fluorene	13.87	166	493842	2622.05	ug/kg	99
12) Phenanthrene	15.31	178	836523	2339.79	ug/kg	100
13) Anthracene	15.35	178	838710	2229.45	ug/kg	100
14) Fluoranthene	17.23	202	984348	2323.26	ug/kg	100
15) Pyrene	17.81	202	987430	2298.41	ug/kg	100
18) Benzo[a]anthracene	20.77	228	984666	2417.93	ug/kg	99
19) Chrysene	21.02	228	825681	2107.55	ug/kg	100
21) Benzo[b]fluoranthene	24.33	252	1115953	2514.81	ug/kg	100
22) Benzo[k]fluoranthene	24.41	252	1060340	2604.62	ug/kg	100
23) Benzo(j)fluoranthene	24.41	252	1065428	2723.30	ug/kg	96
24) Benzo[e]pyrene	25.56	252	1115693	2590.81	ug/kg	99
25) Benzo[a]pyrene	25.74	252	1079860	2518.56	ug/kg	100
26) Dibenz[a,h]anthracene	29.32	278	1039354	2504.99	ug/kg	98
27) Indeno[1,2,3-cd]pyrene	29.33	276	1238582	2515.56	ug/kg	99
28) Benzo[g,h,i]perylene	30.39	276	1033552	2506.28	ug/kg	99

(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160801\16080124.D Vial: 12
Acq On : 2 Aug 2016 1:49 am Operator: DEW
Sample : SSCV (2500 ppb) Inst : GC/MS #6
Misc : ICV Multiplr: 5.00
MS Integration Params: RTEINT.P
Quant Time: Aug 2 9:44 2016 Quant Results File: PP160801.RES

Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration



GCMS8
For

DHL Work Order
1607314

GCMS8_160803B
For

DHL Work Order
1607314

Lab Data Review Check List
EPA Method 8270 / 625 - PAH: Polynuclear Aromatic Hydrocarbons

SEE RUN LOG FOR ALL PROJECT AND BATCH NUMBERS AND MATRICES	Run ID: GCMS8_160803B
Batch Number(s): See Run Log. Matrix: See Run Log.	SOP: ORGANICS-PAH-01

Review Item	Yes	No	N/A	2nd Level Review
Data Folder Contents 1. Is the Prep Batch Report included? Check and record the following: ***Prep Start/End Dates, Sample Amounts, Bottle #s***	X			X
2. Are the reagents and spikes listed on the Prep Batch Report current with a valid expiration date? ***All standard/QC sample preparations shall be documented in LIMS***	X			
3. Is the Run Log and instrument sequence included? ***Check the Test Code, Sample Type, Batch ID, and Analysis Date/Time***	X			
4. Is the System Verification - Tune Report included? ***Date/Tme of Tune starts 12-hour analysis window***	X			
5. Is the Evaluate Continuing Calibration Report included?	X			

Daily Demonstration of Performance

QC items that do not meet method/SOP/project requirements will be described on the run log. All variances that impact data quality will be described in the Variance/Comment Section on page 2.

Review Item	Frequency	Limits	Pass	Fail (List Batch/Sample) **See Run Log**	2nd Level Review
Tune	Before ICAL Every 12 hours	See Tune Eval Report	X		X
Resolution Check - Benzo(b) and Benzo(k)phenanthrene	Before ICAL Every 12 hours	Benzo(b) and Benzo(k) Valley > 50%	X		
Initial Calibration Curve (ICAL) (minimum: 5 Standards)	Prior to samples and when ICV fails	Avg. RF - %RSD ≤ 15% Curve (COD) - R^2 ≥ 0.990	X		
SSCV - (Second Source)	After calibration (ICAL)	80-120%	X		
ICV - (Daily Initial Cal Verification)	Every 12 hours	ISTDs Area% (50-200%) Surrogates %R (See LIMS) Analytes %R (80-120%)	X		

Review Item	Frequency	Limits	Pass	Fail	N/A	Review
Method Blank (MB) System Blank (SYS Blank)	Every Batch (MB) Daily (SYS BL)	< MDL / <½ RL (DoD) or <1/10 the sample/reg limit	X			X
Lab Control Sample (LCS)	Every Batch	See LIMS	X			
Lab Control Sample Dup (LCSD)	Insufficient sample Sample Matrix	See LIMS			X	
LCSD - RPD	Every LCS/LCSD	≤ 30 (Aq/Soil/DoD)			X	
Field Samples	Up to 20 per prep batch	ISTDs Area% (50-200%) Surrogates %R (See LIMS) RRT ± 0.06 RRT Standard Q value > 70 - check for #		X		
Matrix Spike (MS)	Every Batch/20 samples	See LIMS			X	
Matrix Spike Duplicate (MSD) (MSD is N/A for Method 625)	Every Prep Batch except Method 625	See LIMS			X	
MSD - RPD (MSD is N/A for Method 625)	Every MS/MSD except Method 625	≤ 30 (Aq/Soil/DoD)			X	

Lab Data Review Check List
EPA Method 8270 / 625 - PAH: Polynuclear Aromatic Hydrocarbons

Review Item	Criteria	Yes	No	N/A	2nd Level Review
Sample Analysis 1. Are all sample hold times met?	7 days (Aq) - extraction	X			X
	14 days (Soil) - extraction			X	
	40 days analysis	X			
2. Are all manual integrations signed (Before & After) and printouts included ? Put in LIMS Comment Section ***Include MI form for DoD work***	Before & After - signed Comment Section in LIMS MI Form - DoD only			X	
3. Are all samples with concentrations > the highest standard used for calibration diluted and reanalyzed?	> highest standard			X	
Review Item #3 is N/A ONLY if all sample results are within Calibration range or NO if dilution is in different folder					
4. Is mass spectra reviewed/verified if Q value is <70 and/or # flag for results >MDL?	Q value <70 - All hits	X			X
5. Are ALL reported analytes > MDL (+ J flags) circled by the analyst?		X	**Return to analyst if NO**		
VARIANCE REPORT					
QC items that do not meet method/SOP/project requirements will be described on the run log. All variances that impact data quality will be described in this section.					
NON-CONFORMANCES / VARIANCE 1. Are all non-conformances included and noted?	All deviations from the method and SOP that affect data quality	X			X
2. Are all corrective actions included?			X		
3. Does the variance require approval by the Technical Director/General Manager/QA Manager?		X			

Approved by: Date:

Description and Corrective Actions of QC items that do not meet method/SOP/project requirements:

****INCLUDE VARIANCE ITEM / REASON / CORRECTIVE ACTION / IMPACT ON DATA****

VARIANCE ITEM	REASON	CORRECTIVE ACTION
___ Hold Time exceeded (7D/14D-Ext/40D-Analysis)	___ Sample Received out of HT	___ Reanalyze QC to confirm
___ ICV out of control (±20%)	___ Carryover from previous run	___ Recalibrate
___ MB/SYS BL out of control (> MDL / >½ RL)	___ Cross contamination	___ Reprep/Reanalyze sample
___ LCS __LCSD out of control (See LIMS)	___ Lab Artifact	___ Reprep/Reanalyze Batch
___ RPD out of control for LCS/LCSD (>30)	___ Prep Spike error (describe)	___ Reanalyze Batch/Sample/QC
___ MS ___ MSD out of control (See LIMS)	___ High Levels of target analytes	___ Verify H2O/reagents are clean
___ RPD out of control for MS/MSD (>30)	___ High Levels of non-targets	___ Reanalyze sample to confirm
___ Internal Standard(s) out of control	___ Insufficient sample for QC	___ Sample results ND w/ dilution
___ Multiple Surrogates out of control	___ Prep Error	___ Client notified and approved
___ No MS/MSD prepared - LCS/LCSD used instead	___ Analytical Error	X Flag data / Case narrative
___ Missing QC (other than MS/MSD)	___ Client Request	___ Instrument Maintenance
___ QC sample(s) was mis-spiked	___ Other (describe below)	___ Accept data
X Other (describe below)		___ Cannot reanalyze (HT out/Lack of Sample)

General Comments and Impact on Data: **See Run Log.**

One surrogate low - see run log. The other surrogate is passing. Sample is past hold time - no corrective action taken.

Analyst: Karyn Lane Date: 8/4/2016

Second-Level Review: Date: REVIEWED/APPROVED By Sherri Herschmann at 11:20:53 AM, 8/10/2016 08/10/2016

DHL Analytical, Inc.

Run ID: GCMS8_160803B **Run No.:** 87401

Analytical Run Date: 8/3/2016 **InstrumentID:** GCMS8

Analyst: Karyn Lane **Column:** Rtx-5Sil MS (30m x 0.25mm ID x 0.5µm df)

Calibration ID: 681 **Column ID:** 0.18mm

Column Length: 20m

Cal Comments: PAH160802.M

SampID	DF	TestCode	SampType	Batch ID	Analysis Date/Time	Q	Comments
DFTPP-160803	1	PAH_LL_WDOD1	TUNE	R87401	8/3/2016 8:30:00 AM		
ICV-160803	1	PAH_LL_WDOD1	ICV	R87401	8/3/2016 9:09:00 AM		
LCS-76564	1	PAH_LL_WDOD1	LCS	76564	8/3/2016 9:49:00 AM		Equipment blanks - LCS and MB only required.
MB-76564	1	PAH_LL_WDOD1	MBLK	76564	8/3/2016 11:08:00 AM		
1607294-13B	1	PAH_LL_WDOD1	SAMP	76564	8/3/2016 1:47:00 PM		Surrogate 4-Terphenyl-d14 low - confirmed by reanalysis.
1607294-24B	1	PAH_LL_WDOD1	SAMP	76564	8/3/2016 3:07:00 PM		
1607294-37B	1	PAH_LL_WDOD1	SAMP	76564	8/3/2016 3:47:00 PM		
1607294-50B	1	PAH_LL_WDOD1	SAMP	76564	8/3/2016 4:27:00 PM		
1607294-63B	1	PAH_LL_WDOD1	SAMP	76564	8/3/2016 5:07:00 PM		
1607294-76B	1	PAH_LL_WDOD1	SAMP	76564	8/3/2016 5:47:00 PM		
1607314-07B	1	PAH_LL_WDOD1	SAMP	76564	8/3/2016 6:27:00 PM		
1607317-13B	1	PAH_LL_WDOD1	SAMP	76564	8/3/2016 7:06:00 PM		
DFTPP2-160803	1	PAH_LL_WDOD1	TUNE	R87401	8/3/2016 7:48:00 PM		
ICV2-160803	1	PAH_LL_WDOD1	ICV	R87401	8/3/2016 8:27:00 PM		
SBLK-160803	1	PAH_LL_WDOD1	SBLK	76564	8/3/2016 9:47:00 PM		
1607317-26B	1	PAH_LL_WDOD1	SAMP	76564	8/3/2016 10:26:00 PM		
1607317-39B	1	PAH_LL_WDOD1	SAMP	76564	8/3/2016 11:06:00 PM		
1607337-13B	1	PAH_LL_WDOD1	SAMP	76564	8/3/2016 11:46:00 PM		
1607337-26B	1	PAH_LL_WDOD1	SAMP	76564	8/4/2016 12:26:00 AM		
1607294-13B	1	PAH_LL_WDOD1	SAMP	76564	8/4/2016 1:06:00 AM		DNR - for confirmation only.
CCV-160803	1	PAH_LL_WDOD1	CCV	R87401	8/4/2016 1:45:00 AM		

Std ID	Std Name	Type	Exp. Date
DFTPP160509	2.5 PPM 525 TUNE STD.	TUNE	05/07/2017
PAHICV160802	2 PPM PAH ICV	ICV	01/31/2017
SVI160510-3	4000 PPM INTERNAL STANDAR	ALL	07/30/2017

REVIEWED/APPROVED

By Sherri Herschmann at 11:21:45 AM, 8/10/2016

Sequence Name: C:\msdchem\1\sequence\160803.S
Comment:
Operator:
Data Path: C:\MSDCHEM\1\DATA\160803\
Instrument Name: GCMS #8
Instrument Control Pre-Seq Cmd:
Data Analysis Pre-Seq Cmd:

Instrument Control Post-Seq Cmd:
Data Analysis Post-Seq Cmd:

Method Sections To Run
(X) Full Method
( ) Reprocessing Only

On A Barcode Mismatch
(X) Inject Anyway
( ) Don't Inject

Line		Sample Name/Misc Info		
1)	Sample	1	16080301 DFTPPPAH	DFTPP-160803
2)	Sample	2	16080302 PAH160802	ICV-160803
3)	Sample	3	16080303 PAH160802	LCS-76564
4)	Sample	4	16080304 PAH160802	LCSD-76563
5)	Sample	5	16080305 PAH160802	MB-76564
6)	Sample	6	16080306 PAH160802	DCS-76288
7)	Sample	7	16080307 PAH160802	LQV1-73288
8)	Sample	8	16080308 PAH160802	1607303-11C
9)	Sample	9	16080309 PAH160802	1607294-13B
10)	Sample	10	16080310 PAH160802	1607303-11C
11)	Sample	11	16080311 PAH160802	1607294-24B
12)	Sample	12	16080312 PAH160802	1607294-37B
13)	Sample	13	16080313 PAH160802	1607294-50B
14)	Sample	14	16080314 PAH160802	1607294-63B
15)	Sample	15	16080315 PAH160802	1607294-76B
16)	Sample	16	16080316 PAH160802	1607314-07B
17)	Sample	17	16080317 PAH160802	1607317-13B
18)	Sample	18	16080318 DFTPPPAH	DFTPP2-160803
19)	Sample	19	16080319 PAH160802	ICV2-160803
20)	Sample	20	16080320 PAH160802	SBLK
21)	Sample	21	16080321 PAH160802	SBLK-160803
22)	Sample	22	16080322 PAH160802	1607317-26B
23)	Sample	23	16080323 PAH160802	1607317-39B
24)	Sample	24	16080324 PAH160802	1607337-13B
25)	Sample	25	16080325 PAH160802	1607337-26B
26)	Sample	26	16080326 PAH160802	1607294-13B
27)	Sample	27	16080327 PAH160802	CCV-160803

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **7/29/2016 10:26:10 AM**
Digestion:
Prep End Date: **7/29/2016 2:03:00 PM**

Prep Batch **76564** Prep Code: **3510_PAHDOD** Technician: **Lauren Garcia**

Prep Factor Units: **mL/mL**

Equipment List

Turbo-Vap #1,2,3
Balance # 25, 29

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607294-13B	Equip Blank	6	254.9	1	0.004	1 of 1	
1607294-24B	Equip Blank	6	252.3	1	0.004	1 of 1	
1607294-37B	Equip Blank	6	251.6	1	0.004	1 of 1	
1607294-50B	Equip Blank	6	251.4	1	0.004	1 of 1	
1607294-63B	Equip Blank	6	253.9	1	0.004	1 of 1	
1607294-76B	Equip Blank	6	251	1	0.004	1 of 1	
1607314-07B	Equip Blank	6	253.4	1	0.004	1 of 1	
1607317-13B	Equip Blank	6	251.1	1	0.004	1 of 1	
1607317-26B	Equip Blank	6	250.8	1	0.004	1 of 1	
1607317-39B	Equip Blank	6	254.2	1	0.004	1 of 1	
1607337-13B	Aqueous	6	252.9	1	0.004	1 of 1	
1607337-26B	Aqueous	6	252.3	1	0.004	1 of 1	
LCS-76564	Aqueous	6	500	1	0.002	of	
MB-76564	Aqueous	6	500	1	0.002	of	

Number	Reagent Name	Amt	Units	Exp. Da
7509	pH paper 0-14	1	paper	10/15/2025
10394	Purified Sodium Sulfate	10	g	05/23/2026
10419	Methylene Chloride	120	ml	05/31/2026
10535	Whatman 41 Filter	1	filter	07/08/2026

Spk ID	Spike Name	SampType	Amt (mL or g)	Exp. Date
PAHPREP160727	200 PPM PAH Spike Mix	LCS	0.01	10/25/2016
SVPREP160727	40 PPM Surrogate Standard	ALL	0.1	10/25/2016

REVIEWED/APPROVED
By Sherri Herschmann at 11:21:52 AM, 8/10/2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **7/29/2016 10:26:10 AM**
Digestion:
Prep End Date: 7/29/16 2:03 PM

Prep Batch **76564** Prep Code: **3510_PAHDOD** Technician: **Lauren Garcia**

Prep Factor Units: **mL/mL**

Equipment List
Turbo-Vap #1,2,3
Balance # 25, 29

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607294-13B	Equip Blank	6	500	1	0.002	1 of 1	794.2-539.3 = 254.9
1607294-24B	Equip Blank		500	1	0.002	1 of 1	775.4-523.1 = 252.3
1607294-37B	Equip Blank		500	1	0.002	1 of 1	788.9-537.3 = 251.6
1607294-50B	Equip Blank		500	1	0.002	1 of 1	775.7-524.3 = 251.4
1607294-63B	Equip Blank		500	1	0.002	1 of 1	781.6-527.7 = 253.9
1607294-76B	Equip Blank		500	1	0.002	1 of 1	780.4-529.4 = 251.0
1607314-07B	Equip Blank		500	1	0.002	1 of 1	~~772.2~~ = JJ 7/29/16 773.9-520.5 = 253.4
1607317-13B	Equip Blank		500	1	0.002	1 of 1	772.2-521.1 = 251.1
1607317-26B	Equip Blank		500	1	0.002	1 of 1	765.7-514.9 = 250.8
1607317-39B	Equip Blank		500	1	0.002	1 of 1	771.3-517.1 = 254.2
LCS-76564	Aqueous	6	500	1	0.002	of	
MB-76564	Aqueous	6	500	1	0.002	of	

1607337-13B
337-26B

764.1 - 511.2 = 252.9
781.9 - 529.6 = 252.3

REVIEWED/APPROVED
By Sherri Herschmann at 11:24:24 AM, 8/10/2016

Number	Reagent Name	Amt	Units	Exp. Da
7509	pH paper 0-14	1	paper	10/15/2025
10394	Purified Sodium Sulfate	10	g	05/23/2026
10419	Methylene Chloride	120	ml	05/31/2026
10535	Whatman 41 Filter	1	filter	07/08/2026

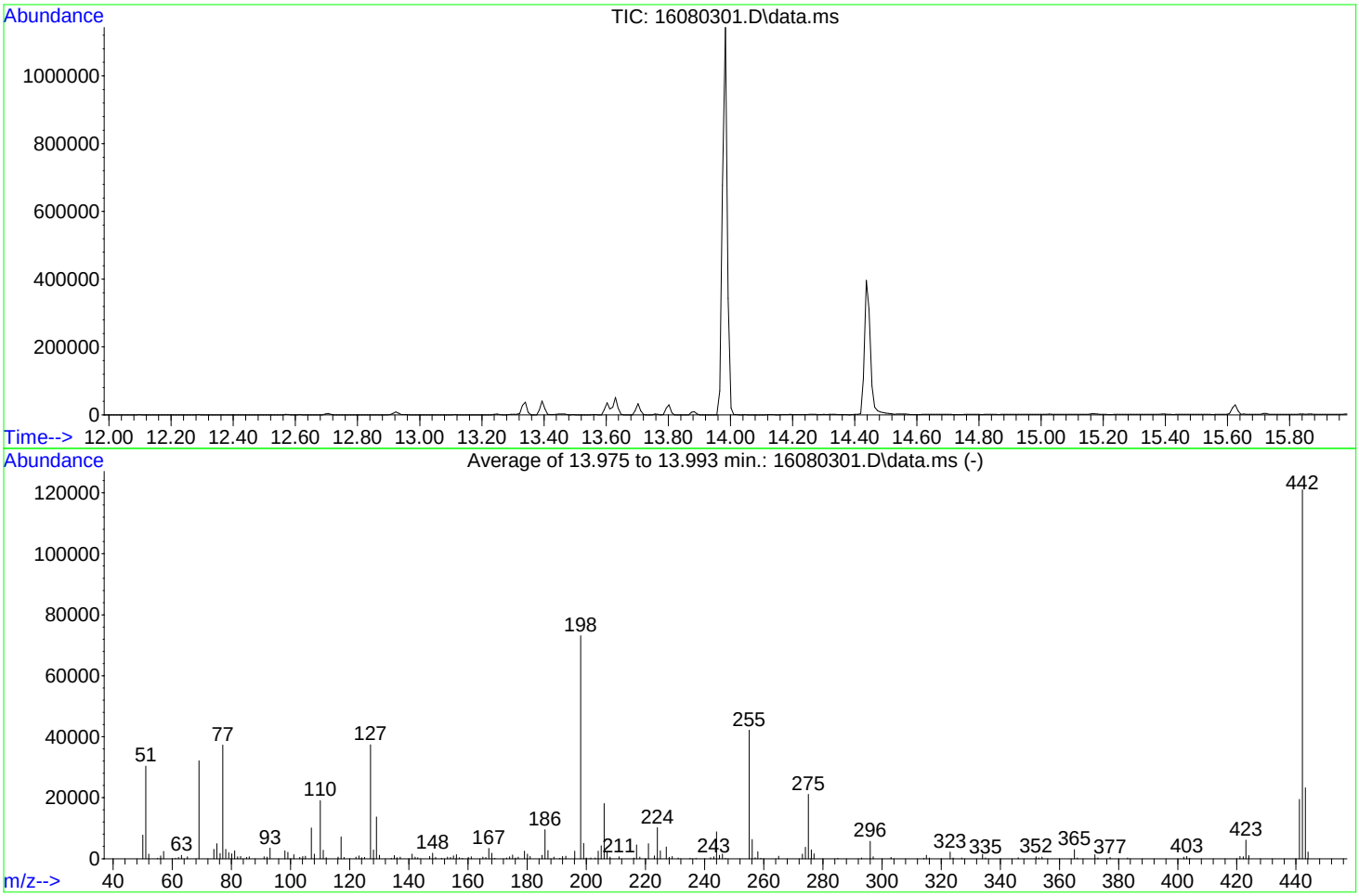
Spk ID	Spike Name	SampType	Amt (mL or g)	Exp. Date
PAHPREP160727	200 PPM PAH Spike Mix	LCS	0.01	10/25/2016
SVPREP160727	40 PPM Surrogate Standard	ALL	0.1	10/25/2016

DP 7/29/16 AR 7/29/16 JJ 7/29/16

Data Path : C:\msdchem\1\DATA\160803\
Data File : 16080301.D
Acq On : 3 Aug 2016 8:30 am
Operator :
Sample : DFTPP-160803
Misc : TUNE
ALS Vial : 1 Sample Multiplier: 1

Integration File: RTEINT.P

Method : C:\msdchem\1\METHODS\DFTPPPAH.M
Title : CLP BNA Calibration - Large Volume Injection
Last Update : Thu Aug 27 07:24:43 2015



AutoFind: Scans 429, 430, 431; Background Corrected with Scan 425

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	10	80	41.5	30395	PASS
68	69	0.00	2	0.0	0	PASS
69	198	0.00	100	43.9	32151	PASS
70	69	0.00	2	0.0	0	PASS
127	198	10	80	51.1	37380	PASS
197	198	0.00	2	0.0	0	PASS
198	198	100	100	100.0	73176	PASS
199	198	5	9	6.9	5031	PASS
275	198	10	60	28.8	21092	PASS
365	198	1	200	4.1	3004	PASS
441	442	0.01	24	16.1	19486	PASS
442	198	50	400	165.4	121034	PASS
443	442	15	24	19.2	23240	PASS

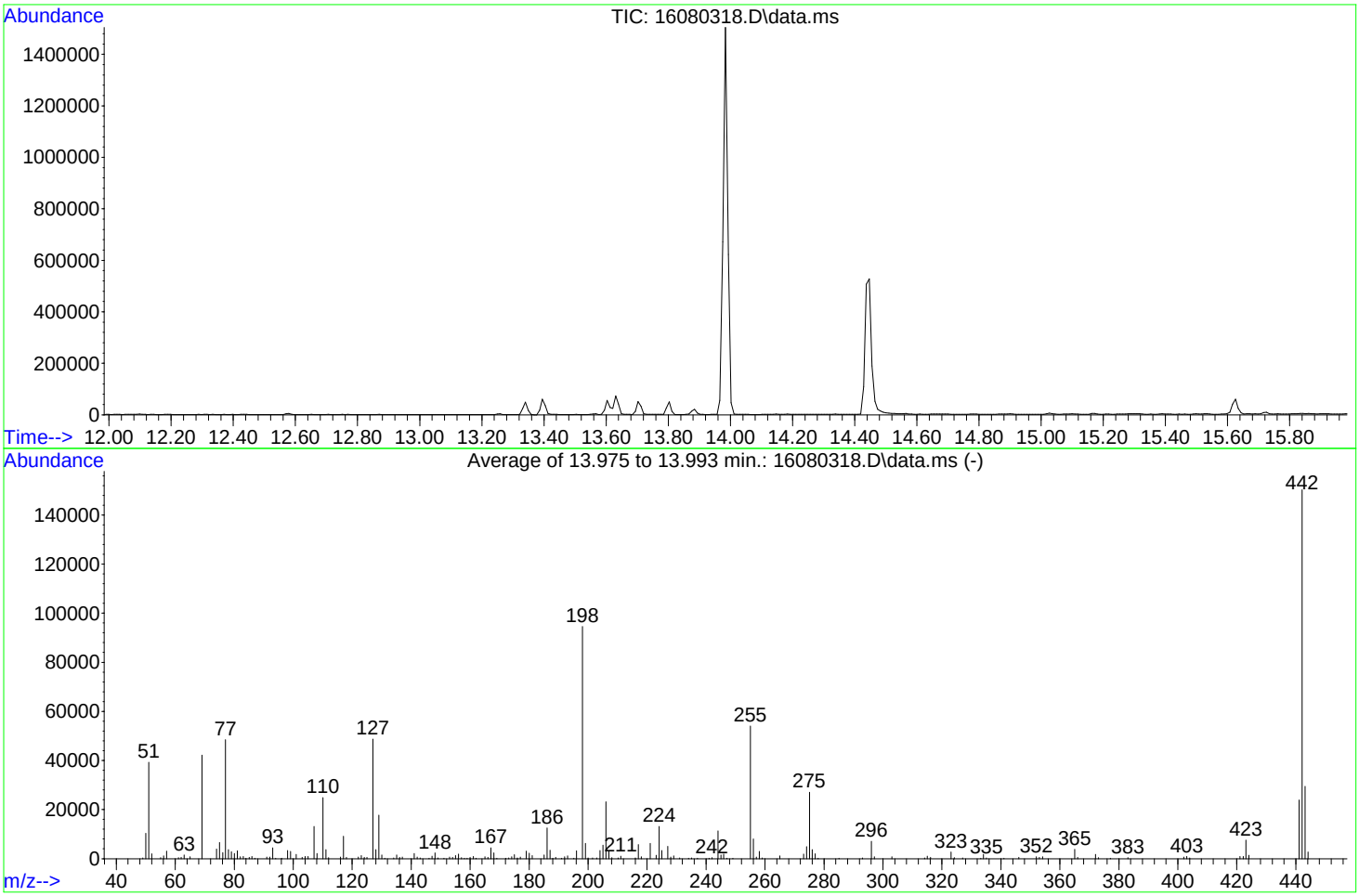
REVIEWED/APPROVED
By Sherri Herschmann at 9:49:02 AM, 8/4/2016

DFTPP

Data Path : C:\msdchem\1\DATA\160803\
Data File : 16080318.D
Acq On : 3 Aug 2016 7:48 pm
Operator :
Sample : DFTPP2-160803
Misc : TUNE
ALS Vial : 18 Sample Multiplier: 1

Integration File: RTEINT.P

Method : C:\msdchem\1\METHODS\DFTPPPAH.M
Title : CLP BNA Calibration - Large Volume Injection
Last Update : Thu Aug 27 07:24:43 2015



AutoFind: Scans 429, 430, 431; Background Corrected with Scan 425

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	10	80	41.5	39277	PASS
68	69	0.00	2	0.0	0	PASS
69	198	0.00	100	44.5	42136	PASS
70	69	0.00	2	0.0	0	PASS
127	198	10	80	51.5	48754	PASS
197	198	0.00	2	0.0	0	PASS
198	198	100	100	100.0	94600	PASS
199	198	5	9	6.7	6295	PASS
275	198	10	60	28.6	27089	PASS
365	198	1	200	4.0	3811	PASS
441	442	0.01	24	15.9	23947	PASS
442	198	50	400	158.9	150304	PASS
443	442	15	24	19.6	29507	PASS

REVIEWED/APPROVED
By Sherri Herschmann at 11:24:44 AM, 8/10/2016

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160803\
Data File : 16080302.D
Acq On : 3 Aug 2016 9:09 am
Operator :
Sample : ICV-160803
Misc : ICV
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Aug 03 16:06:53 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 10:10:50 2016
Response via : Initial Calibration

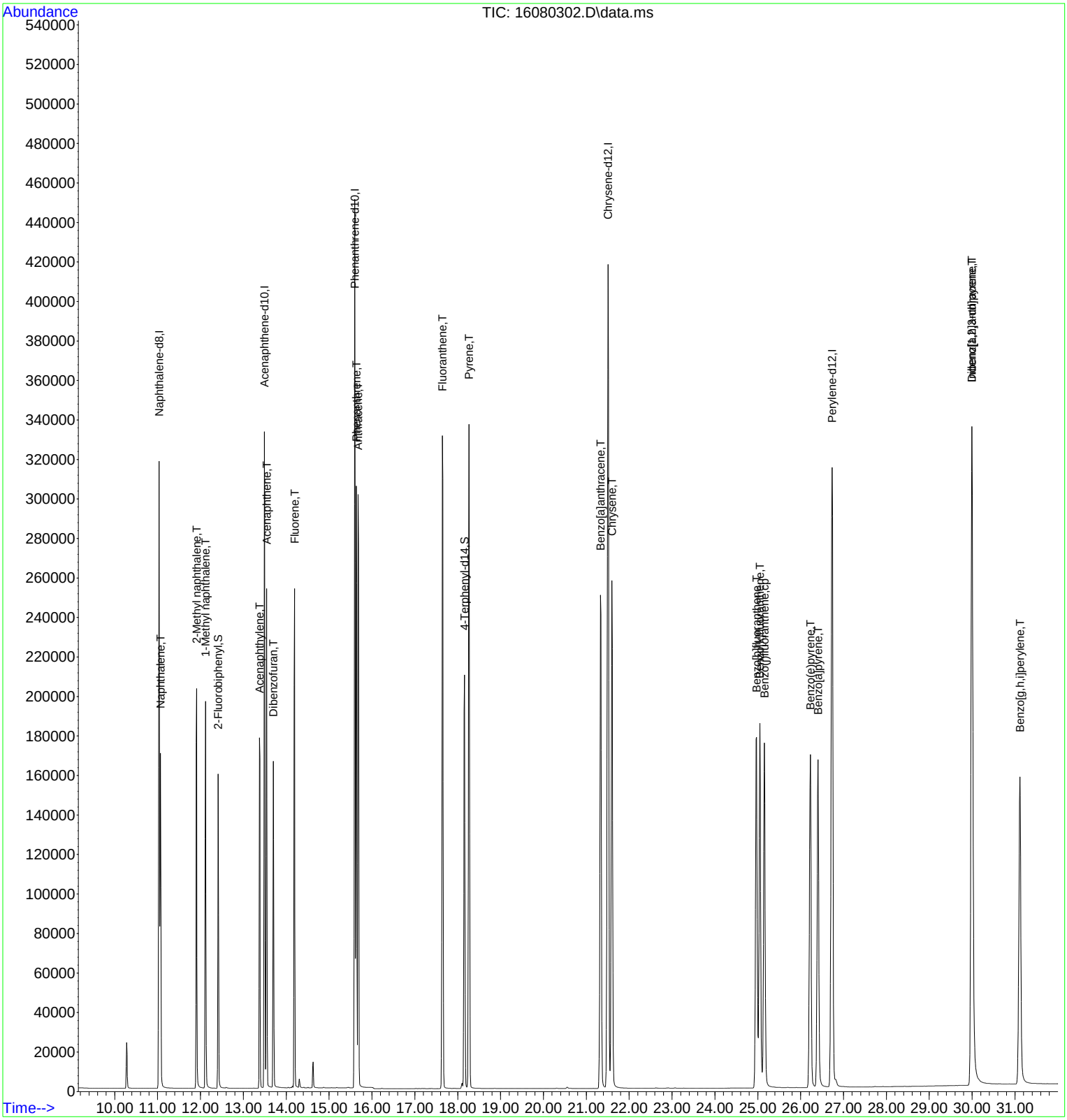
Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	11.033	136	390553	4000.00	ug/kg	100
6) Acenaphthene-d10	13.490	164	183562	4000.00	ug/kg	100
11) Phenanthrene-d10	15.600	188	509810	4000.00	ug/kg	102
17) Chrysene-d12	21.508	240	654325	4000.00	ug/kg	97
20) Perylene-d12	26.733	264	594983	4000.00	ug/kg	97
System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.413	172	125265	1934.07	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 48.35%			
15) 4-Terphenyl-d14	18.159	244	242415	1909.23	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery = 47.73%#			
Target Compounds						Qvalue
2) Naphthalene	11.068	128	178905	1883.99	ug/kg	100
3) 2-Methyl naphthalene	11.910	142	117561	1967.33	ug/kg	97
4) 1-Methyl naphthalene	12.118	142	107352	1956.46	ug/kg	98
7) Acenaphthylene	13.377	152	176868	2009.63	ug/kg	99
8) Acenaphthene	13.542	153	110322	1978.58	ug/kg	99
9) Dibenzofuran	13.698	168	155670	1970.36	ug/kg	71
10) Fluorene	14.193	166	134789	2021.51	ug/kg	99
12) Phenanthrene	15.634	178	262008	1900.99	ug/kg	99
13) Anthracene	15.678	178	269388	1910.93	ug/kg	99
14) Fluoranthene	17.643	202	358655	1939.37	ug/kg	100
16) Pyrene	18.263	202	364075	1896.47	ug/kg	100
18) Benzo[a]anthracene	21.331	228	350831	2067.91	ug/kg	100
19) Chrysene	21.597	228	328075	2026.60	ug/kg	100
21) Benzo[b]fluoranthene	24.970	252	336445	2095.75	ug/kg	99
22) Benzo[k]fluoranthene	25.051	252	296090	2155.96	ug/kg	99
23) Benzo(j)fluoranthene	25.155	252	281469	2098.35	ug/kg	100
24) Benzo(e)pyrene	26.226	252	313111	2015.57	ug/kg	100
25) Benzo[a]pyrene	26.403	252	307070	2082.90	ug/kg	99
26) Indeno[1,2,3-cd]pyrene	30.002	276	369754	2123.66	ug/kg	98
27) Dibenz[a,h]anthracene	29.994	278	306446	2140.51	ug/kg	99
28) Benzo[g,h,i]perylene	31.113	276	311193	2034.70	ug/kg	97

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160803\
Data File : 16080302.D
Acq On : 3 Aug 2016 9:09 am
Operator :
Sample : ICV-160803
Misc : ICV
ALS Vial : 2 Sample Multiplier: 1

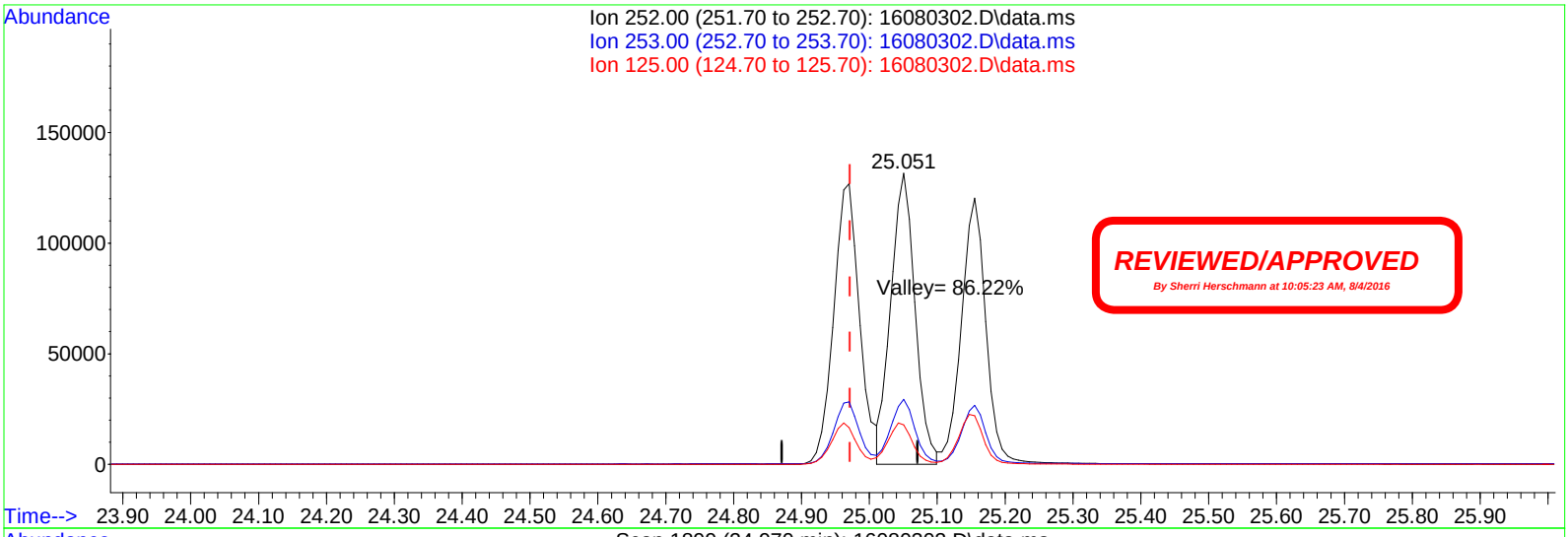
Quant Time: Aug 03 16:06:53 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 10:10:50 2016
Response via : Initial Calibration

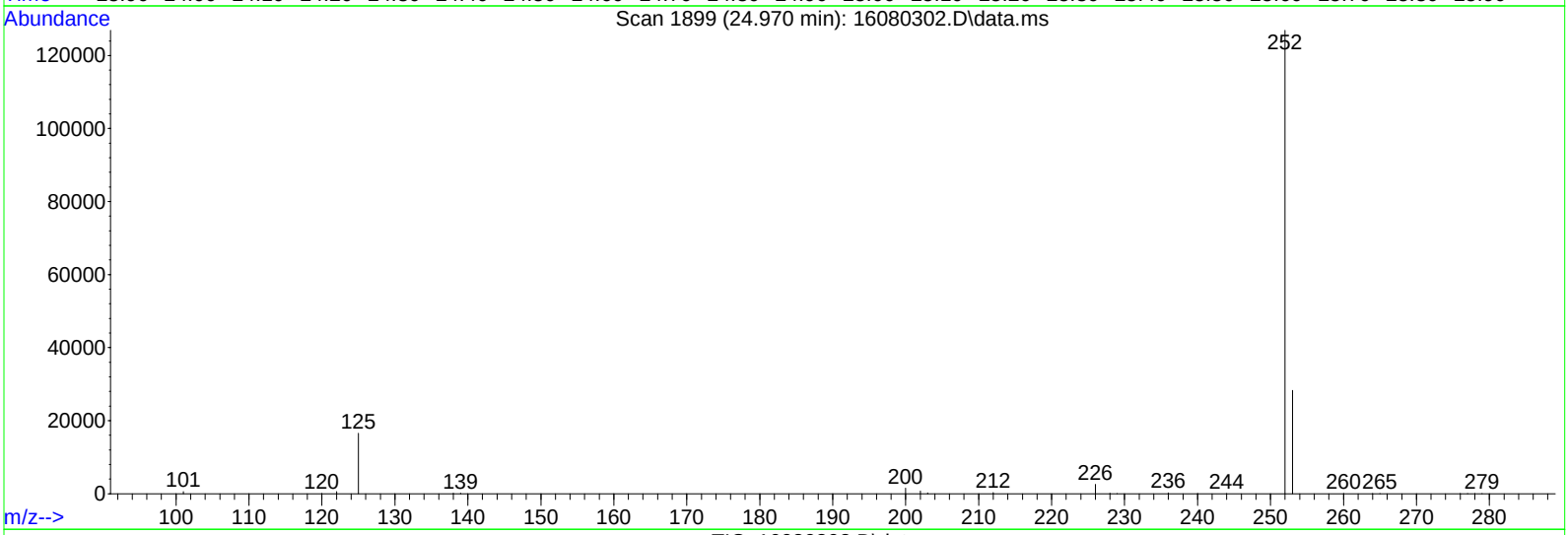


Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\160803\
Data File : 16080302.D
Acq On : 3 Aug 2016 9:09 am
Operator :
Sample : ICV-160803
Misc : ICV
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Aug 03 16:06:53 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 10:10:50 2016
Response via : Initial Calibration





TIC: 16080302.D\data.ms

(21) Benzo[b]fluoranthene (T)

24.970min (-0.001) 2095.75ug/kg

response 336445

Ion	Exp%	Act%
252.00	100	100
253.00	22.10	22.04
125.00	13.90	13.01
0.00	0.00	0.00

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160803\
Data File : 16080303.D
Acq On : 3 Aug 2016 9:49 am
Operator :
Sample : LCS-76564
Misc : LCS
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Aug 03 16:06:57 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 10:10:50 2016
Response via : Initial Calibration

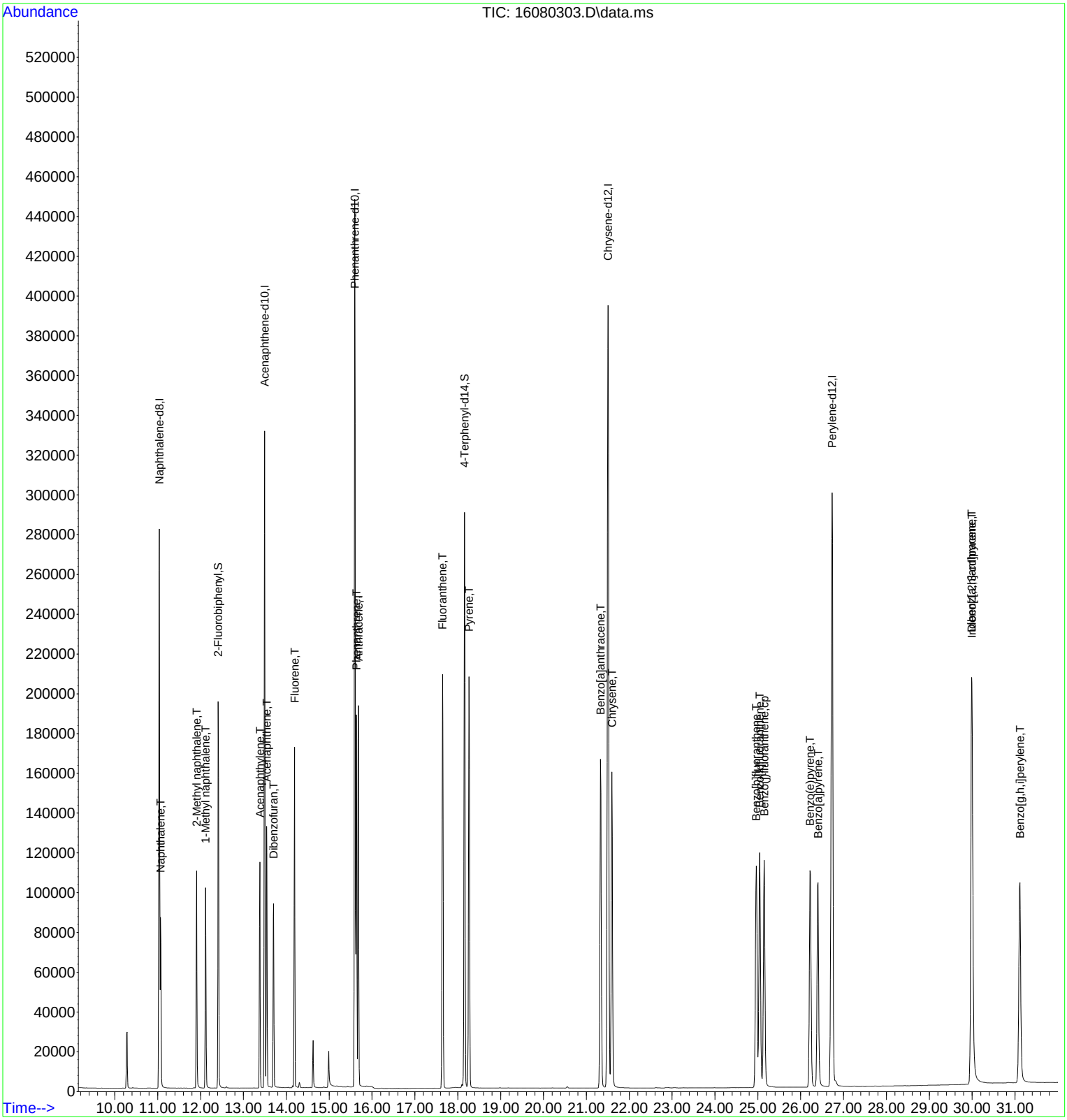
Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	11.039	136	368907	4000.00	ug/kg	94
6) Acenaphthene-d10	13.496	164	180794	4000.00	ug/kg	99
11) Phenanthrene-d10	15.597	188	514572	4000.00	ug/kg	103
17) Chrysene-d12	21.508	240	620547	4000.00	ug/kg	92
20) Perylene-d12	26.733	264	566556	4000.00	ug/kg	92
System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.410	172	160816	2628.66	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 65.72%			
15) 4-Terphenyl-d14	18.158	244	323974	2527.96	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery = 63.20%			
Target Compounds						Qvalue
2) Naphthalene	11.065	128	93399	1041.27	ug/kg	100
3) 2-Methyl naphthalene	11.907	142	59580	1055.55	ug/kg	100
4) 1-Methyl naphthalene	12.115	142	56031	1081.07	ug/kg	99
7) Acenaphthylene	13.383	152	103886	1198.46	ug/kg	100
8) Acenaphthene	13.539	153	63907	1163.69	ug/kg	100
9) Dibenzofuran	13.704	168	93926	1207.05	ug/kg	98
10) Fluorene	14.190	166	84248	1282.86	ug/kg	100
12) Phenanthrene	15.640	178	170562	1226.06	ug/kg	100
13) Anthracene	15.684	178	171191	1203.12	ug/kg	100
14) Fluoranthene	17.643	202	225310	1207.06	ug/kg	98
16) Pyrene	18.263	202	229843	1186.17	ug/kg	98
18) Benzo[a]anthracene	21.331	228	221604	1377.31	ug/kg	100
19) Chrysene	21.596	228	202551	1319.31	ug/kg	99
21) Benzo[b]fluoranthene	24.962	252	209253	1368.86	ug/kg	100
22) Benzo[k]fluoranthene	25.042	252	193018	1475.97	ug/kg	100
23) Benzo(j)fluoranthene	25.147	252	183085	1433.38	ug/kg	100
24) Benzo(e)pyrene	26.226	252	202065	1366.00	ug/kg	100
25) Benzo[a]pyrene	26.403	252	194973	1388.89	ug/kg	98
26) Indeno[1,2,3-cd]pyrene	30.002	276	235137	1418.25	ug/kg	93
27) Dibenz[a,h]anthracene	29.986	278	190770	1399.38	ug/kg	99
28) Benzo[g,h,i]perylene	31.113	276	198941	1366.02	ug/kg	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160803\
Data File : 16080303.D
Acq On : 3 Aug 2016 9:49 am
Operator :
Sample : LCS-76564
Misc : LCS
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Aug 03 16:06:57 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 10:10:50 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160803\
Data File : 16080305.D
Acq On : 3 Aug 2016 11:08 am
Operator :
Sample : MB-76564
Misc : MBLK
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Aug 03 16:07:03 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 10:10:50 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	11.039	136	371236	4000.00	ug/kg	95
6) Acenaphthene-d10	13.496	164	187440	4000.00	ug/kg	103
11) Phenanthrene-d10	15.597	188	516421	4000.00	ug/kg	103
17) Chrysene-d12	21.508	240	618317	4000.00	ug/kg	92
20) Perylene-d12	26.733	264	568486	4000.00	ug/kg	93

System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.411	172	176201	2862.07	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 71.55%			
15) 4-Terphenyl-d14	18.159	244	324574	2523.58	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery = 63.09%			

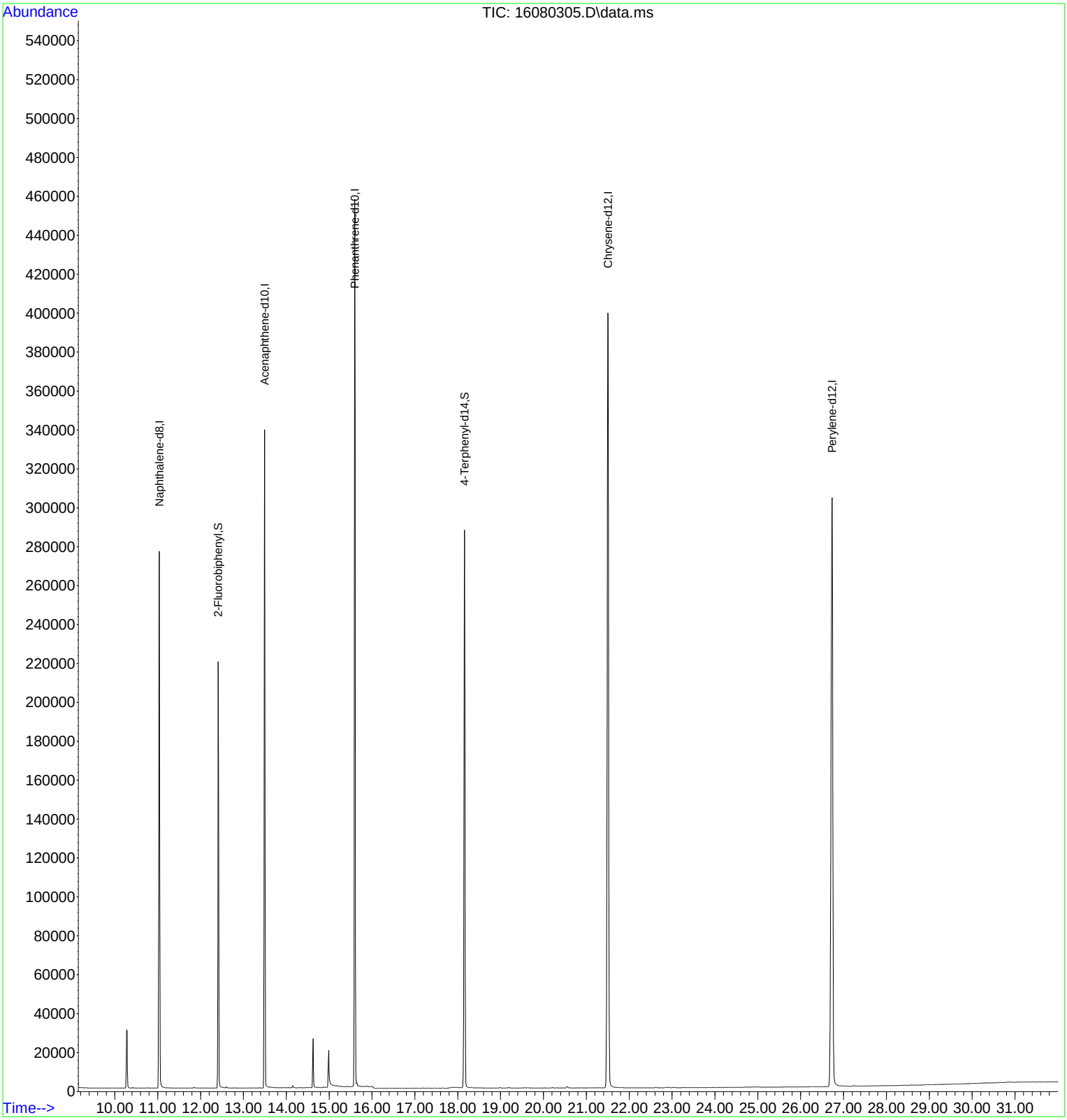
Target Compounds	Qvalue

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160803\
Data File : 16080305.D
Acq On : 3 Aug 2016 11:08 am
Operator :
Sample : MB-76564
Misc : MBLK
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Aug 03 16:07:03 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 10:10:50 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160803\
Data File : 16080316.D
Acq On : 3 Aug 2016 6:27 pm
Operator :
Sample : 1607314-07B
Misc : SAMP
ALS Vial : 16 Sample Multiplier: 1

Quant Time: Aug 04 09:01:02 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 16:07:35 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	11.039	136	384500	4000.00	ug/kg	98
6) Acenaphthene-d10	13.496	164	206647	4000.00	ug/kg	113
11) Phenanthrene-d10	15.606	188	569926	4000.00	ug/kg	114
17) Chrysene-d12	21.517	240	651304	4000.00	ug/kg	97
20) Perylene-d12	26.742	264	601506	4000.00	ug/kg	98

System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.420	172	190745	2991.43	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 74.79%			
15) 4-Terphenyl-d14	18.167	244	347427	2447.66	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery = 61.19%			

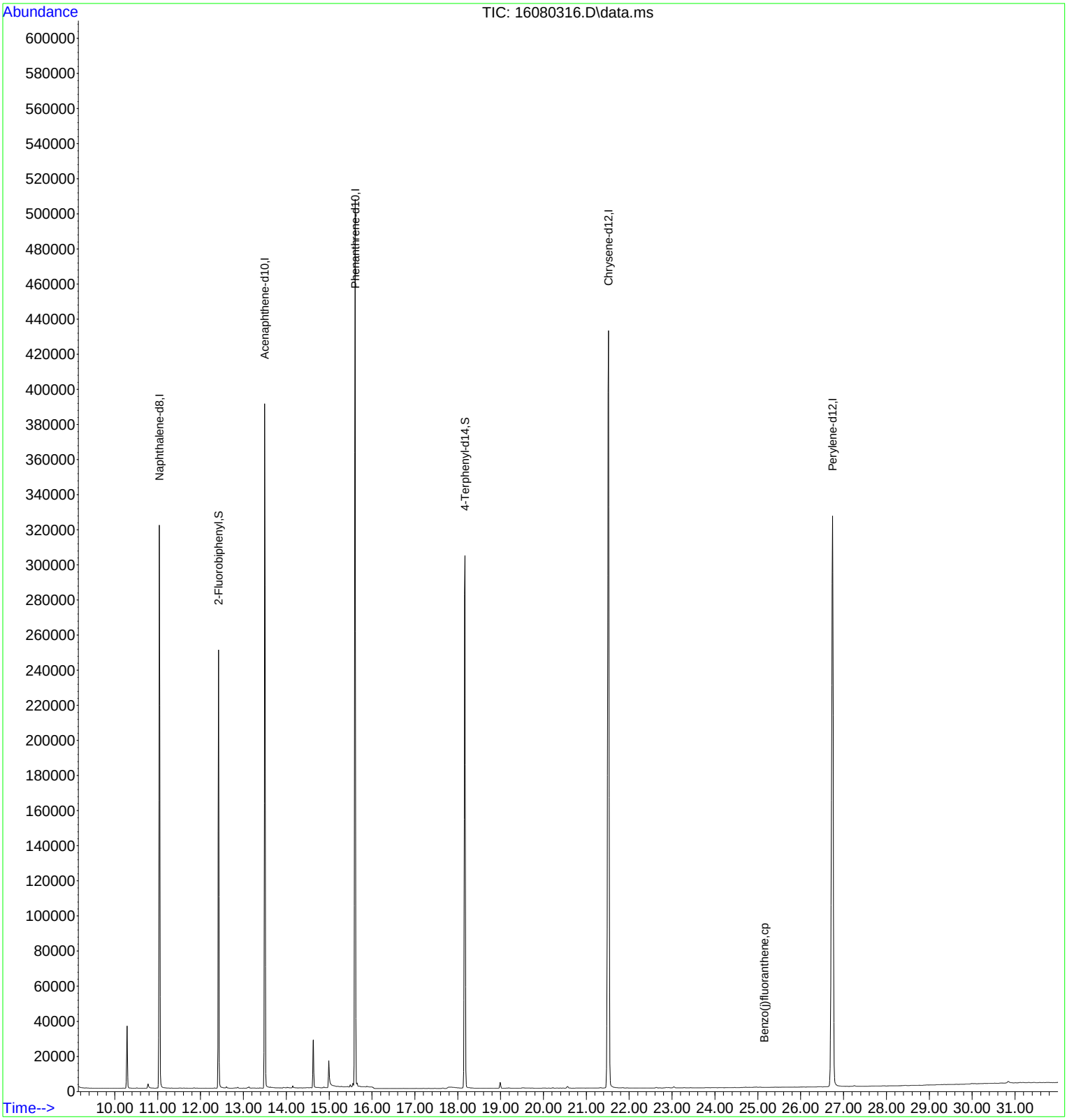
Target Compounds						Qvalue
23) Benzo(j)fluoranthene	25.148	252	83	0.61	ug/kg	71

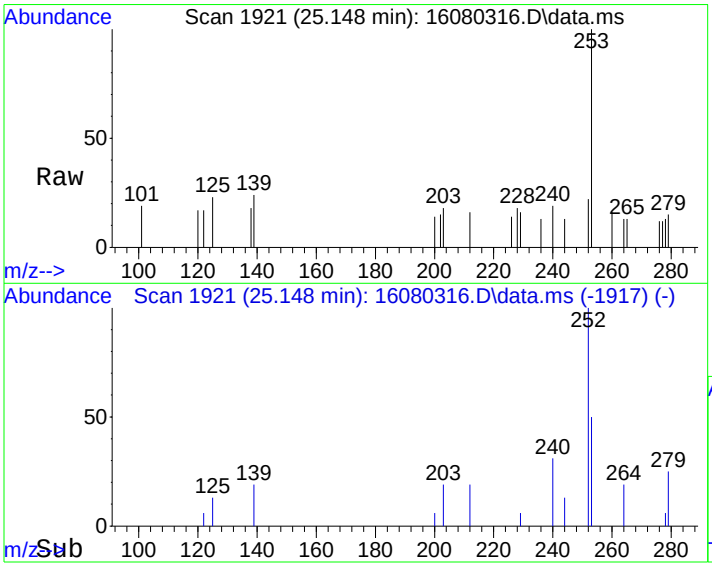
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160803\
Data File : 16080316.D
Acq On : 3 Aug 2016 6:27 pm
Operator :
Sample : 1607314-07B
Misc : SAMP
ALS Vial : 16 Sample Multiplier: 1

Quant Time: Aug 04 09:01:02 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 16:07:35 2016
Response via : Initial Calibration

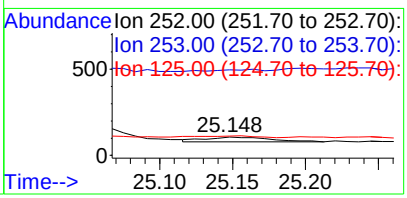




#23
Benzo(j)fluoranthene
Concen: 0.61 ug/kg
RT: 25.148 min Scan# 1921
Delta R.T. -0.008 min
Lab File: 16080316.D
Acq: 3 Aug 2016 6:27 pm

Tgt Ion:252 Resp: 83

Ion	Ratio	Lower	Upper
252	100		
253	31.3	2.0	42.0
125	37.3	0.0	39.3



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160803\
Data File : 16080319.D
Acq On : 3 Aug 2016 8:27 pm
Operator :
Sample : ICV2-160803
Misc : ICV
ALS Vial : 19 Sample Multiplier: 1

Quant Time: Aug 04 09:01:43 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 16:07:35 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	11.042	136	387288	4000.00	ug/kg	99
6) Acenaphthene-d10	13.499	164	209956	4000.00	ug/kg	115
11) Phenanthrene-d10	15.608	188	609657	4000.00	ug/kg	122
17) Chrysene-d12	21.516	240	657322	4000.00	ug/kg	98
20) Perylene-d12	26.741	264	594208	4000.00	ug/kg	97

System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.422	172	130518	2032.16	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 50.80%			
15) 4-Terphenyl-d14	18.167	244	251408	1655.77	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery = 41.39%#			

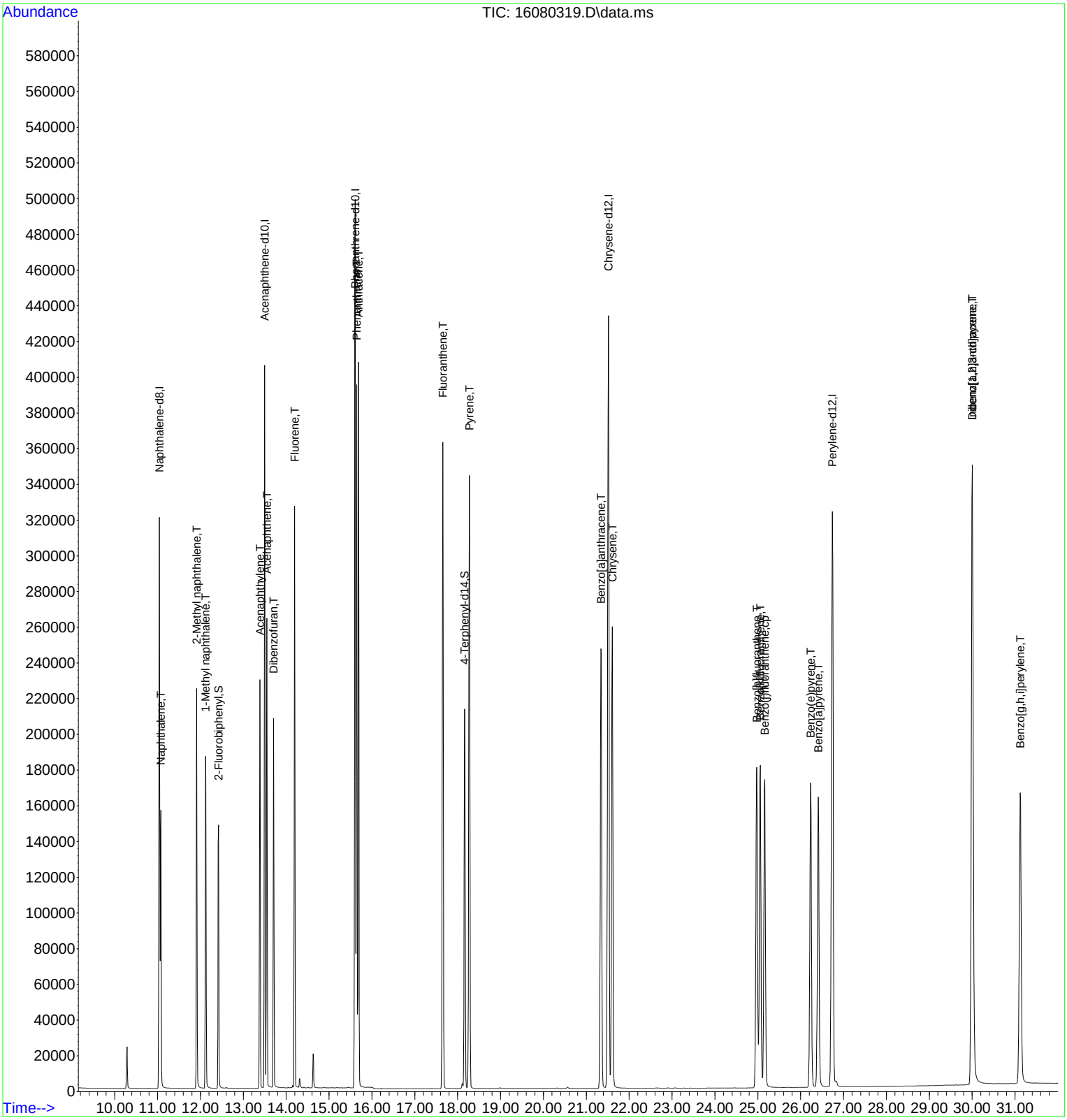
Target Compounds						Qvalue
2) Naphthalene	11.076	128	177263	1882.44	ug/kg	99
3) 2-Methyl naphthalene	11.910	142	119739	2020.67	ug/kg	100
4) 1-Methyl naphthalene	12.127	142	110170	2024.75	ug/kg	95
7) Acenaphthylene	13.386	152	200745	1994.19	ug/kg	99
8) Acenaphthene	13.551	153	125065	1961.01	ug/kg	97
9) Dibenzofuran	13.707	168	186459	2063.38	ug/kg	89
10) Fluorene	14.193	166	168105	2204.22	ug/kg	99
12) Phenanthrene	15.643	178	328719	1994.40	ug/kg	99
13) Anthracene	15.687	178	314489	1865.50	ug/kg	99
14) Fluoranthene	17.651	202	379720	1717.00	ug/kg	99
16) Pyrene	18.271	202	383475	1670.38	ug/kg	99
18) Benzo[a]anthracene	21.347	228	352868	2070.44	ug/kg	100
19) Chrysene	21.605	228	326961	2010.51	ug/kg	100
21) Benzo[b]fluoranthene	24.978	252	339971	2120.48	ug/kg	99
22) Benzo[k]fluoranthene	25.059	252	304117	2217.30	ug/kg	99
23) Benzo(j)fluoranthene	25.163	252	287778	2148.18	ug/kg	100
24) Benzo(e)pyrene	26.234	252	314023	2024.07	ug/kg	100
25) Benzo[a]pyrene	26.411	252	305106	2072.28	ug/kg	99
26) Indeno[1,2,3-cd]pyrene	30.010	276	377399	2170.39	ug/kg	97
27) Dibenz[a,h]anthracene	30.002	278	313771	2194.54	ug/kg	98
28) Benzo[g,h,i]perylene	31.121	276	321130	2102.41	ug/kg	97

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160803\
Data File : 16080319.D
Acq On : 3 Aug 2016 8:27 pm
Operator :
Sample : ICV2-160803
Misc : ICV
ALS Vial : 19 Sample Multiplier: 1

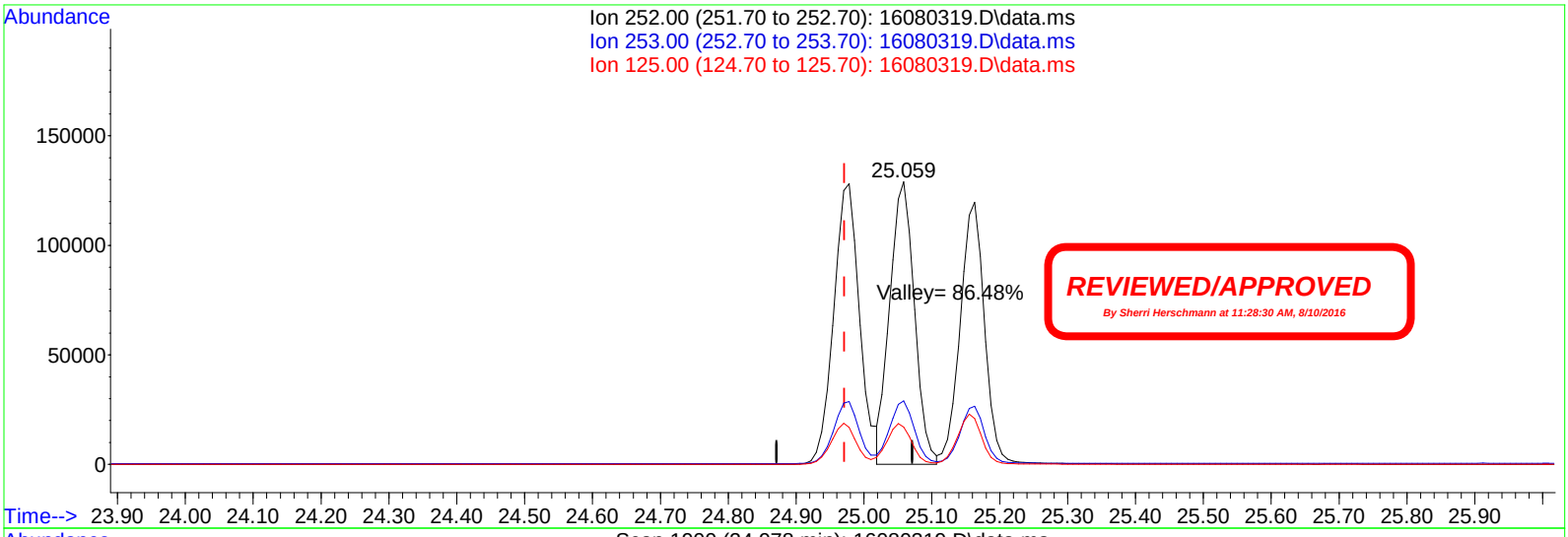
Quant Time: Aug 04 09:01:43 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 16:07:35 2016
Response via : Initial Calibration

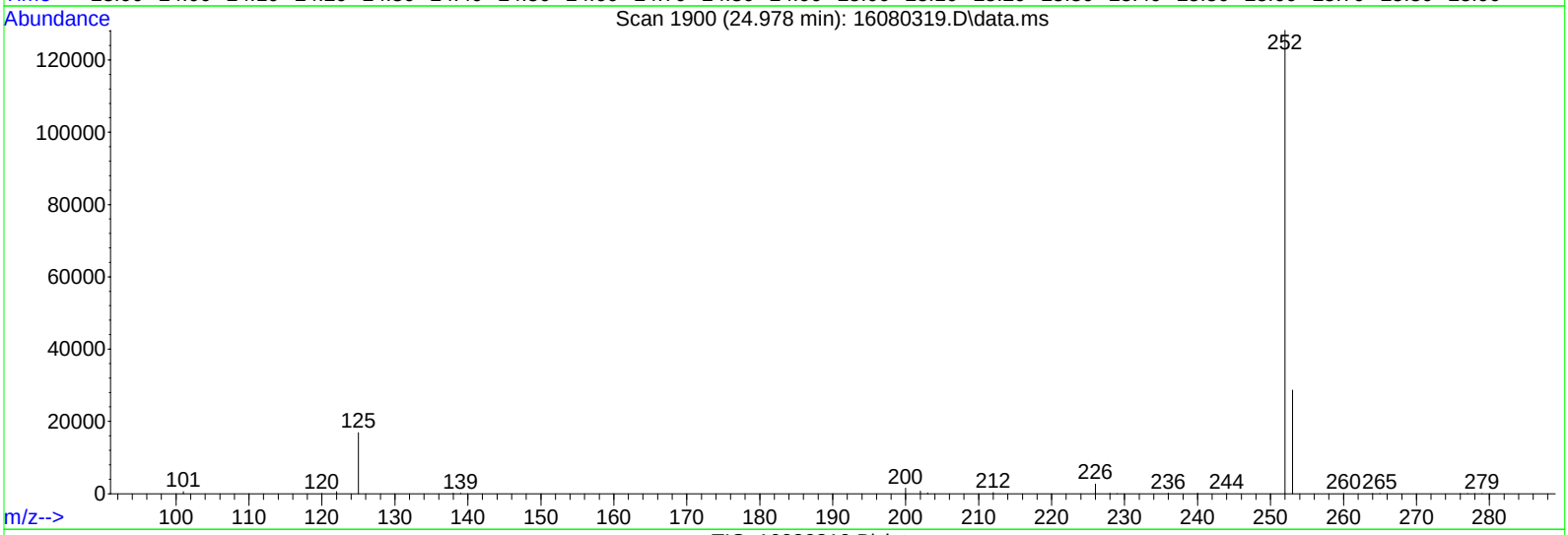


Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\160803\
Data File : 16080319.D
Acq On : 3 Aug 2016 8:27 pm
Operator :
Sample : ICV2-160803
Misc : ICV
ALS Vial : 19 Sample Multiplier: 1

Quant Time: Aug 04 09:01:43 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 16:07:35 2016
Response via : Initial Calibration





TIC: 16080319.D\data.ms

(21) Benzo[b]fluoranthene (T)

24.978min (+0.007) 2120.48ug/kg

response 339971

Ion	Exp%	Act%
252.00	100	100
253.00	22.10	22.03
125.00	13.90	13.12
0.00	0.00	0.00

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160803\
Data File : 16080321.D
Acq On : 3 Aug 2016 9:47 pm
Operator :
Sample : SBLK-160803
Misc : SBLK
ALS Vial : 21 Sample Multiplier: 1

Quant Time: Aug 04 09:01:46 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 16:07:35 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	11.039	136	341177	4000.00	ug/kg	87
6) Acenaphthene-d10	13.496	164	221523	4000.00	ug/kg	121
11) Phenanthrene-d10	15.606	188	589500	4000.00	ug/kg	118
17) Chrysene-d12	21.509	240	575268	4000.00	ug/kg	85
20) Perylene-d12	26.734	264	532525	4000.00	ug/kg	87

System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.428	172	45	0.80	ug/kg	0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery = 0.02%#			
15) 4-Terphenyl-d14	18.159	244	243	1.66	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery = 0.04%#			

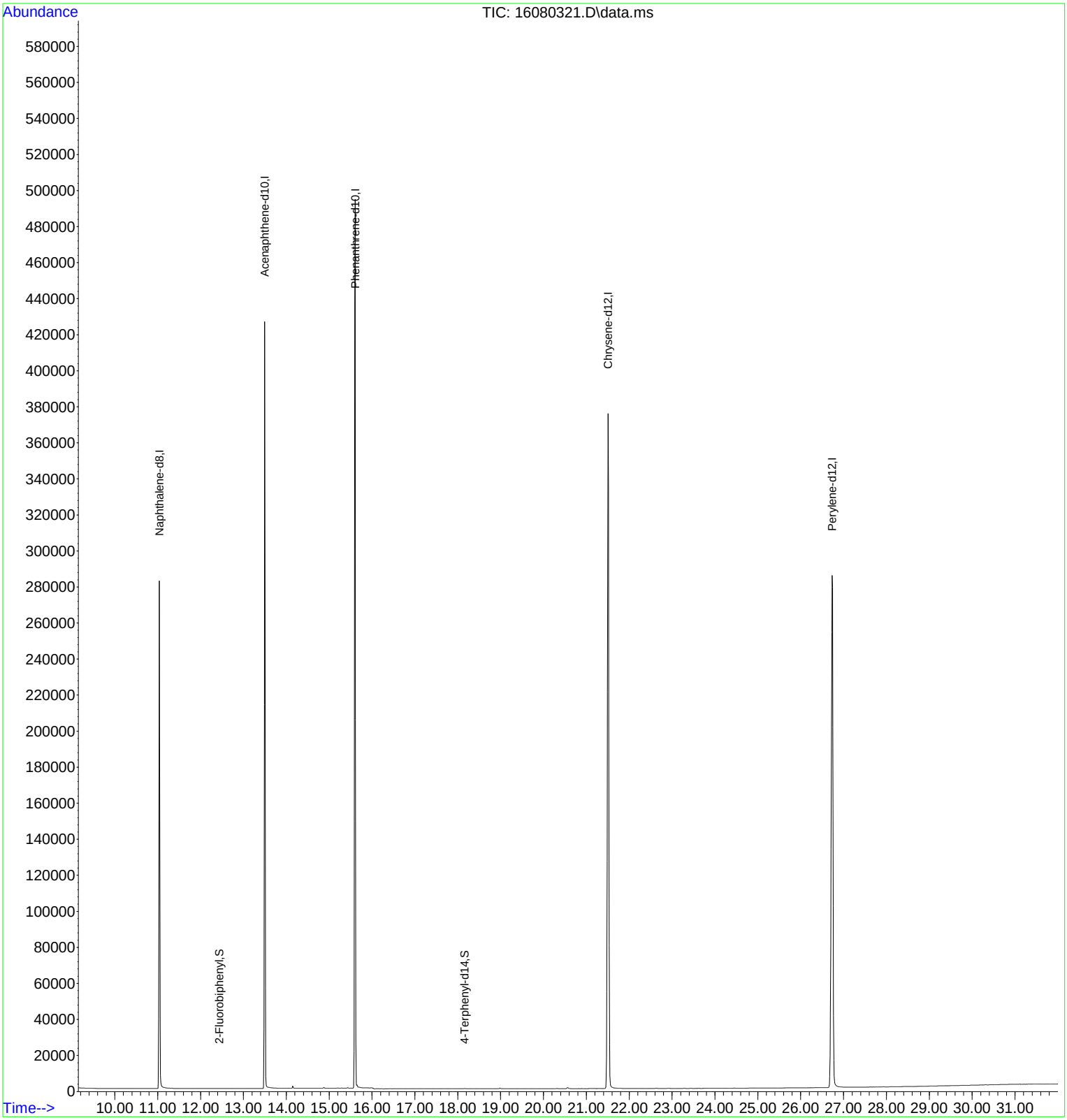
Target Compounds	Qvalue

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160803\
Data File : 16080321.D
Acq On : 3 Aug 2016 9:47 pm
Operator :
Sample : SBLK-160803
Misc : SBLK
ALS Vial : 21 Sample Multiplier: 1

Quant Time: Aug 04 09:01:46 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 16:07:35 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160803\
Data File : 16080327.D
Acq On : 4 Aug 2016 1:45 am
Operator :
Sample : CCV-160803
Misc : CCV
ALS Vial : 27 Sample Multiplier: 1

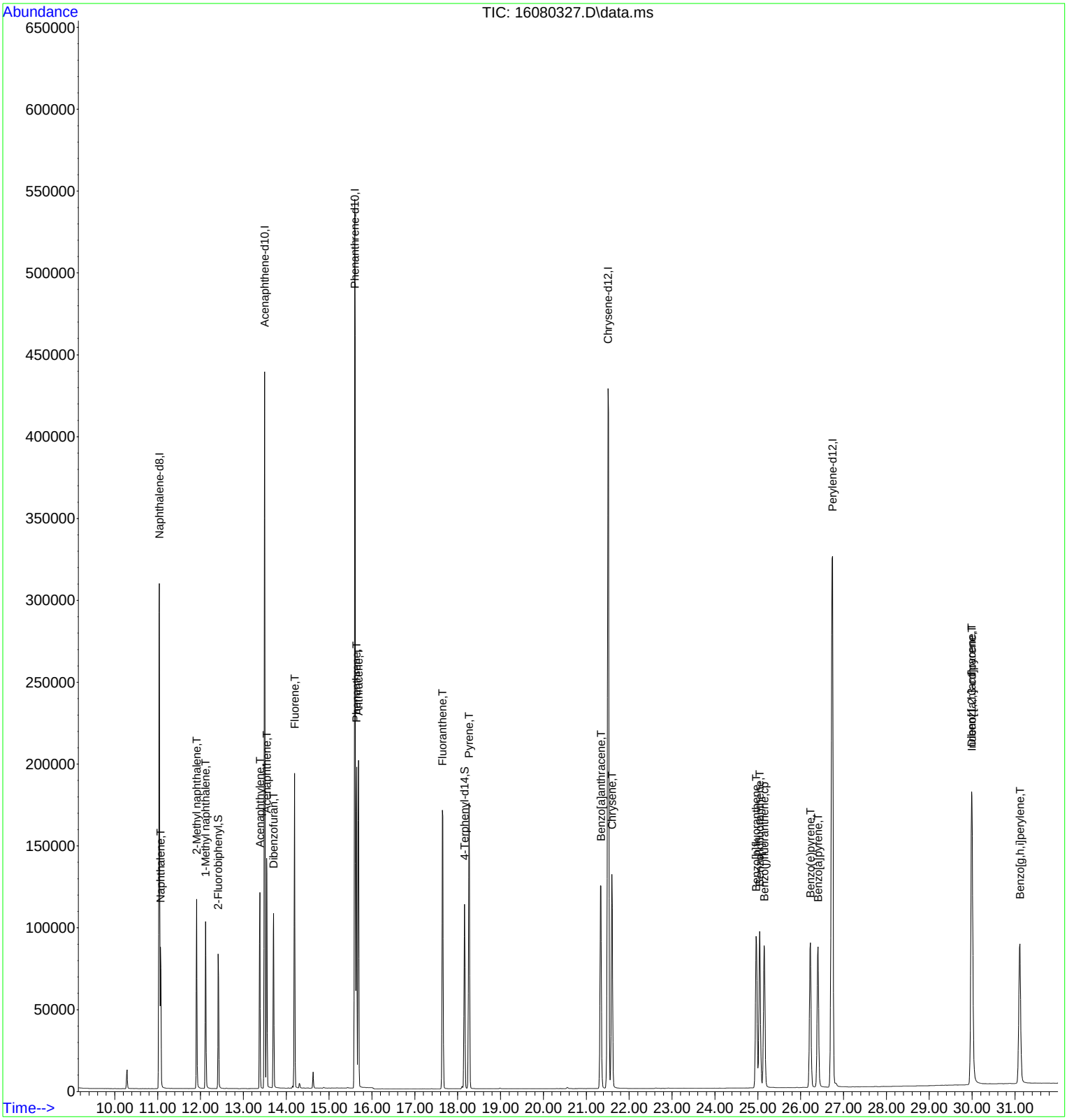
Quant Time: Aug 04 09:01:49 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 16:07:35 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	11.041	136	409391	4000.00	ug/kg	104
6) Acenaphthene-d10	13.498	164	237519	4000.00	ug/kg	130
11) Phenanthrene-d10	15.599	188	651082	4000.00	ug/kg	130
17) Chrysene-d12	21.509	240	671659	4000.00	ug/kg	100
20) Perylene-d12	26.743	264	627164	4000.00	ug/kg	102
System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.413	172	70807	1042.94	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 26.07%#			
15) 4-Terphenyl-d14	18.160	244	124759	769.38	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery = 19.23%#			
Target Compounds						Qvalue
2) Naphthalene	11.067	128	92674	931.01	ug/kg	100
3) 2-Methyl naphthalene	11.909	142	63055	1006.64	ug/kg	100
4) 1-Methyl naphthalene	12.118	142	58193	1011.75	ug/kg	100
7) Acenaphthylene	13.385	152	111325	977.56	ug/kg	100
8) Acenaphthene	13.541	153	69742	966.65	ug/kg	100
9) Dibenzofuran	13.706	168	106268	1039.51	ug/kg	97
10) Fluorene	14.193	166	94669	1097.27	ug/kg	100
12) Phenanthrene	15.642	178	166343	945.02	ug/kg	100
13) Anthracene	15.686	178	171132	950.54	ug/kg	100
14) Fluoranthene	17.644	202	190210	805.36	ug/kg	99
16) Pyrene	18.264	202	190806	778.25	ug/kg	98
18) Benzo[a]anthracene	21.340	228	175783	1009.38	ug/kg	99
19) Chrysene	21.598	228	165503	995.97	ug/kg	99
21) Benzo[b]fluoranthene	24.963	252	169176	999.74	ug/kg	99
22) Benzo[k]fluoranthene	25.044	252	159278	1100.26	ug/kg	100
23) Benzo(j)fluoranthene	25.148	252	148663	1051.41	ug/kg	99
24) Benzo(e)pyrene	26.227	252	159582	974.55	ug/kg	100
25) Benzo[a]pyrene	26.404	252	158866	1022.32	ug/kg	98
26) Indeno[1,2,3-cd]pyrene	30.003	276	199081	1084.74	ug/kg	92
27) Dibenz[a,h]anthracene	29.987	278	165023	1093.53	ug/kg	100
28) Benzo[g,h,i]perylene	31.115	276	169994	1054.46	ug/kg	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\msdchem\1\DATA\160803\
Data File : 16080327.D
Acq On : 4 Aug 2016 1:45 am
Operator :
Sample : CCV-160803
Misc : CCV
ALS Vial : 27 Sample Multiplier: 1

Quant Time: Aug 04 09:01:49 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 16:07:35 2016
Response via : Initial Calibration



GCMS8
Calibration Curve
For

DHL Work Order
1607314

CAL ID: 681

Method 8270 PAH Calibration Curve Sheet

Instrument ID: GCMS #6 **Calibration File Name:** PAH160802.CAL

Target Concentration	Solvent Amount mL	Standard Preparation Stocks and Surrogate (µL/mL)	Final Volume mL
5 ppb	0.999	0.001 mL of 5000 ppb	1
10 ppb	0.998	0.002 mL of 5000 ppb	1
50 ppb	0.990	0.01 mL of 5000 ppb	1
100 ppb	0.980	0.02 mL of 5000 ppb	1
500 ppb	0.900	0.10 mL of 5000 ppb	1
1000 ppb	0.800	0.20 mL of 5000 ppb	1
2000 ppb	0.600	0.40 mL of 5000 ppb	1
5000 ppb	----	PAHCAL160801	10
SSCV 2500 ppb	0.500	0.50 mL of PAHSSCV160725	1
SSCV 2500 ppb	----	PAHSSCV160801-1	1

Standards Used for the Calibration Curve

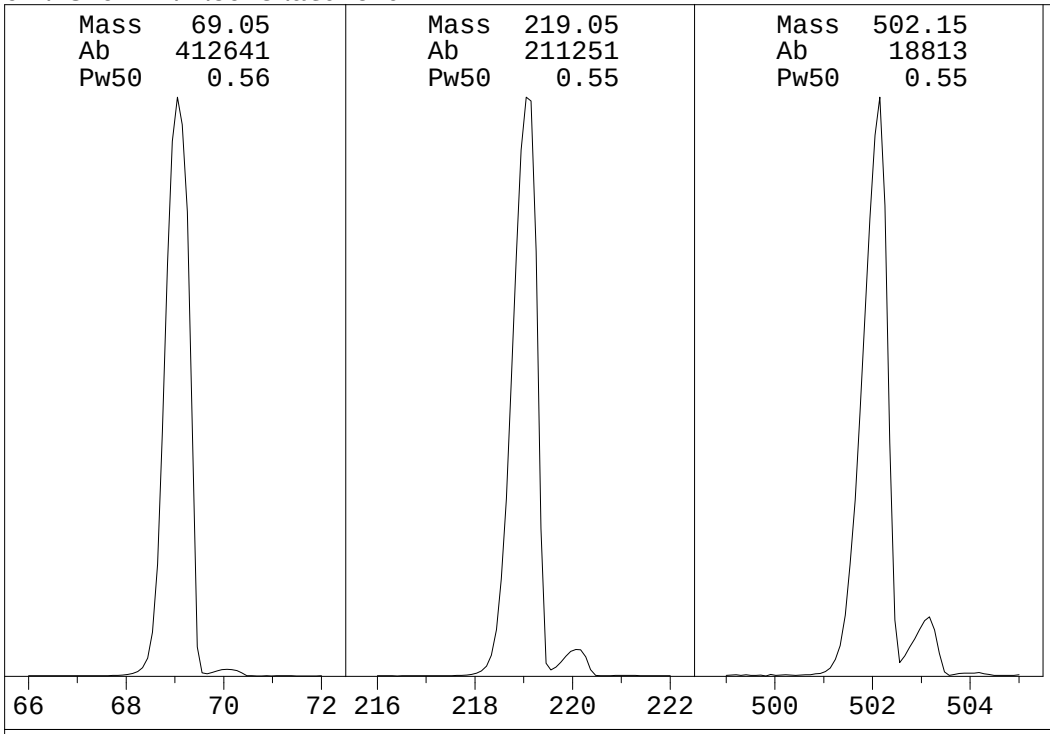
Primary Stock STDs	DHL Standard ID	Second Source (SS) Stock STDs	DHL Standard ID
5 PPM (5000 PPB) PAH CAL STD	**PAHCAL160801**	5PPM (5000PPB) PAH SSCV STD	**PAHSSCV160725**
		2.5PPM (2500PPB) PAH SSCV STD	**PAHSSCV160801-1**

Review Item	Acceptance Criteria	Yes	No	N/A	2nd Level Review
1. Are all standards within expiration dates?	Primary Stocks = 1 year Intermediate Standards = 6 months	X			X
2. Are all manual integrations listed on MI tracking form? **(DoD Projects only)**	Manual Integration Tracking Form			X	
3. Does the tune and resolution check meet criteria?	Benzo(b) / Benzo(k)phenanthrene Valley > 50% See Tune Eval Report	X			
4. Does the ICAL curve meet criteria? Use average CF only if %RSD < 15%	%RSD < 15% COD ≥ 0.990	X			
5. Has the low point been reprocessed under the new ICAL curve and meets criteria?	70-130% recovery	X			
6. Has the SSCV been analyzed and meets criteria?	80-120% recovery	X			

Analyst: Karyn Lane Date: 08/3/2016

Second-Level Review: Date: 08/10/2016

Tue Aug 02 16:40:26 2016 Instrument: GCMS #8
C:\MSDCHEM\1\5973\atune.u

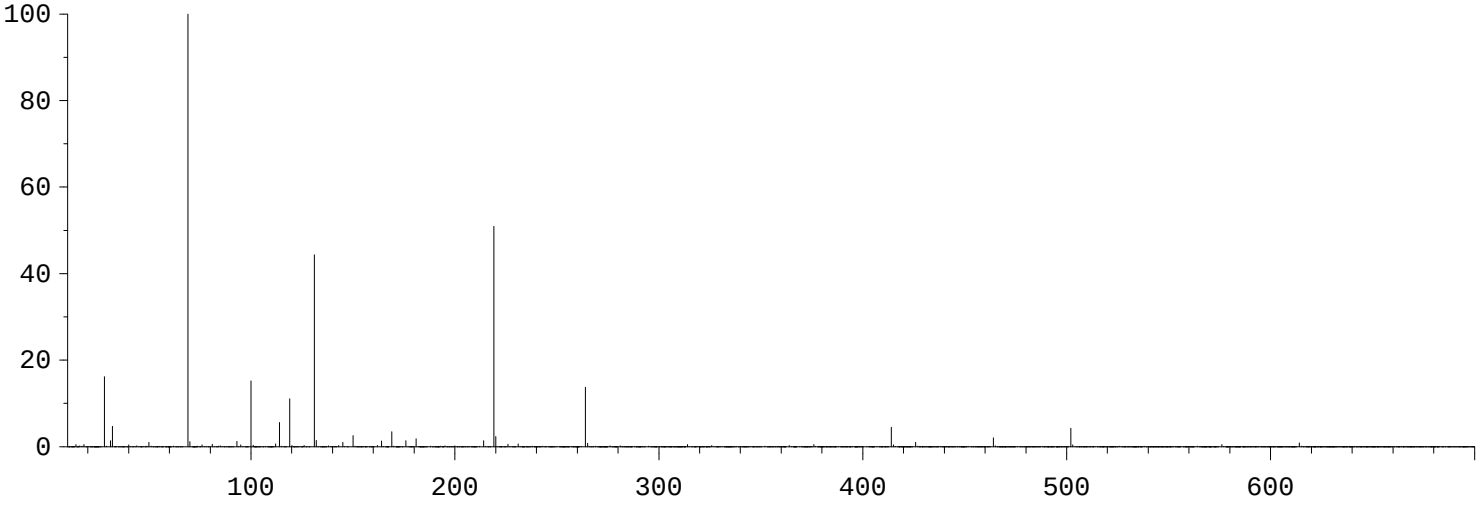


Ion Pol	POS	MassGain	45
		MassOffs	-11
Emission	34.6	AmuGain	2075
EIEnrgy	69.9	AmuOffs	135
Filament	1	Wid219	-0.002
		DC Pol	NEG
Repeller	31.46		
IonFcus	100.6	HEDEnab	ON
EntLens	14.5	EMVolts	1259
EntOffs	22.09		
		Samples	8
PFTBA	OPEN	Averages	3
		Stepsize	0.10

Zones:

MS Source	230	Foreline	40
MS Quad	150		

Scan: 10.00 - 700.00 Samples: 8 Thresh: 0 Step: 0.10
1041 peaks Base: 69.05 Abundance: 374592



Mass	Abund	Rel Abund	Iso Mass	Iso Abund	Iso Ratio
69.05	374592	100.00	70.05	4356	1.16
219.05	190784	50.93	220.05	8742	4.58
502.05	16013	4.27	503.05	1583	9.89

Air/Water Check: H20~0.52% N2~16.18% O2~4.70% CO2~0.16% N2/H2O~3118.48%

Column Flow: Front: 0 Back: 0 ml/min. Interface Temp: 310

Ramp Criteria:
Ion Focus Maximum 125 volts using ion 219; EM Gain 5042
Repeller Maximum 38 volts using ion 502;

MassGain Values @Samples: 45@3 45@2 45@1 45@0 45@FS

TARGET MASS:	50	69	131	219	414	502	800
Amu Offset:	135.0	135.0	135.0	135.0	135.0	135.0	135.0
Entrance Lens Offset:	22.1	22.1	22.1	22.1	22.1	22.1	22.1

Response Factor Report GCMS #8

Method Path : C:\msdchem\1\METHODS\
Method File : PAH160802.M
Title : CLP BNA Calibration - Large Volume Injection
Last Update : Wed Aug 03 10:10:50 2016
Response Via : Initial Calibration

Calibration Files
1 =16080214.D 2 =16080215.D 3 =16080216.D 4 =16080217.D 5 =16080218.D 6 =16080219.D 7 =16080220.D
8 =16080221.D

		Compound	1	2	3	4	5	6	7	8	Avg	%RSD	Fit	RSD/CF	Constant	Linear	Quad
1)	I	Naphthalene-d8	----------ISTD----------														
2)	T	Naphthalene	1.121	0.999	0.975	1.013	0.934	0.903	0.910	0.925	0.973	7.45	A	0.0745	0.0000	0.9726	0.0000
3)	T	2-Methyl napht...	0.631	0.623	0.607	0.644	0.606	0.587	0.592	0.606	0.612	3.17	A	0.0317	0.0000	0.6120	0.0000
4)	T	1-Methyl napht...	0.579	0.555	0.563	0.609	0.559	0.539	0.543	0.548	0.562	4.06	A	0.0406	0.0000	0.5620	0.0000
5)	S	2-Fluorobiphenyl	0.689	0.683	0.660	0.711	0.657	0.634	0.635	0.638	0.663	4.29	A	0.0429	0.0000	0.6633	0.0000
6)	I	Acenaphthene-d10	----------ISTD----------														
7)	T	Acenaphthylene	1.998	1.874	1.874	1.965	1.905	1.853	1.911	1.962	1.918	2.71	A	0.0271	0.0000	1.9178	0.0000
8)	T	Acenaphthene	1.313	1.165	1.218	1.263	1.200	1.157	1.190	1.213	1.215	4.26	A	0.0426	0.0000	1.2150	0.0000
9)	T	Dibenzofuran	1.852	1.719	1.673	1.773	1.700	1.634	1.666	1.756	1.722	4.07	A	0.0407	0.0000	1.7216	0.0000
10)	T	Fluorene	1.559	1.393	1.366	1.489	1.426	1.388	1.430	1.573	1.453	5.44	A	0.0544	0.0000	1.4530	0.0000
11)	I	Phenanthrene-d10	----------ISTD----------														
12)	T	Phenanthrene	1.133	1.195	1.067	1.146	1.065	0.997	1.020	1.029	1.081	6.42	A	0.0642	0.0000	1.0814	0.0000
13)	T	Anthracene	1.163	1.067	1.095	1.250	1.071	1.064	1.073	1.066	1.106	6.04	A	0.0604	0.0000	1.1061	0.0000
14)	T	Fluoranthene	1.561	1.392	1.467	1.543	1.459	1.406	1.447	1.333	1.451	5.23	A	0.0523	0.0000	1.4510	0.0000
15)	S	4-Terphenyl-d14	1.076	0.972	1.036	1.044	1.018	0.967	0.985	0.871	0.996	6.34	A	0.0634	0.0000	0.9962	0.0000
16)	T	Pyrene	1.659	1.466	1.542	1.607	1.521	1.434	1.482	1.338	1.506	6.68	A	0.0668	0.0000	1.5063	0.0000
17)	I	Chrysene-d12	----------ISTD----------														
18)	T	Benzo[a]anthra...	1.050	0.934	0.989	1.109	1.074	1.050	1.077	1.014	1.037	5.38	A	0.0538	0.0000	1.0371	0.0000
19)	T	Chrysene	1.030	0.925	0.954	1.071	1.012	0.984	0.995	0.946	0.990	4.87	A	0.0487	0.0000	0.9896	0.0000
20)	I	Perylene-d12	----------ISTD----------														
21)	T	Benzo[b]fluora...	1.061	0.970	1.041	1.203	1.103	1.079	1.120	1.058	1.079	6.24	A	0.0624	0.0000	1.0793	0.0000
22)	T	Benzo[k]fluora...	0.825	0.748	0.840	1.010	0.999	0.987	1.019	0.959	0.923	11.20	A	0.1120	0.0000	0.9233	0.0000
23)	cp	Benzo(j)fluora...	0.882	0.807	0.868	0.920	0.949	0.922	0.962	0.904	0.902	5.50	A	0.0550	0.0000	0.9018	0.0000
24)	T	Benzo(e)pyrene	1.116	1.002	1.027	1.088	1.049	1.022	1.054	0.997	1.044	3.94	A	0.0394	0.0000	1.0444	0.0000
25)	T	Benzo[a]pyrene	0.979	0.894	0.948	1.085	1.021	0.993	1.028	0.980	0.991	5.76	A	0.0576	0.0000	0.9911	0.0000
26)	T	Indeno[1,2,3-c...	1.086	1.053	1.128	1.287	1.204	1.191	1.234	1.181	1.171	6.63	A	0.0663	0.0000	1.1705	0.0000
27)	T	Dibenz[a,h]ant...	0.936	0.858	0.905	1.039	0.981	0.979	1.021	0.980	0.962	6.22	A	0.0622	0.0000	0.9625	0.0000
28)	T	Benzo[g,h,i]pe...	1.038	0.962	1.006	1.122	1.042	1.003	1.039	1.014	1.028	4.47	A	0.0447	0.0000	1.0282	0.0000

(#) = Out of Range

Sequence Name: C:\msdchem\1\sequence\160802.S
Comment:
Operator:
Data Path: C:\MSDCHEM\1\DATA\160802\
Instrument Name: GCMS #8
Instrument Control Pre-Seq Cmd:
Data Analysis Pre-Seq Cmd:

Instrument Control Post-Seq Cmd:
Data Analysis Post-Seq Cmd:

Method Sections To Run
(X) Full Method
( ) Reprocessing Only

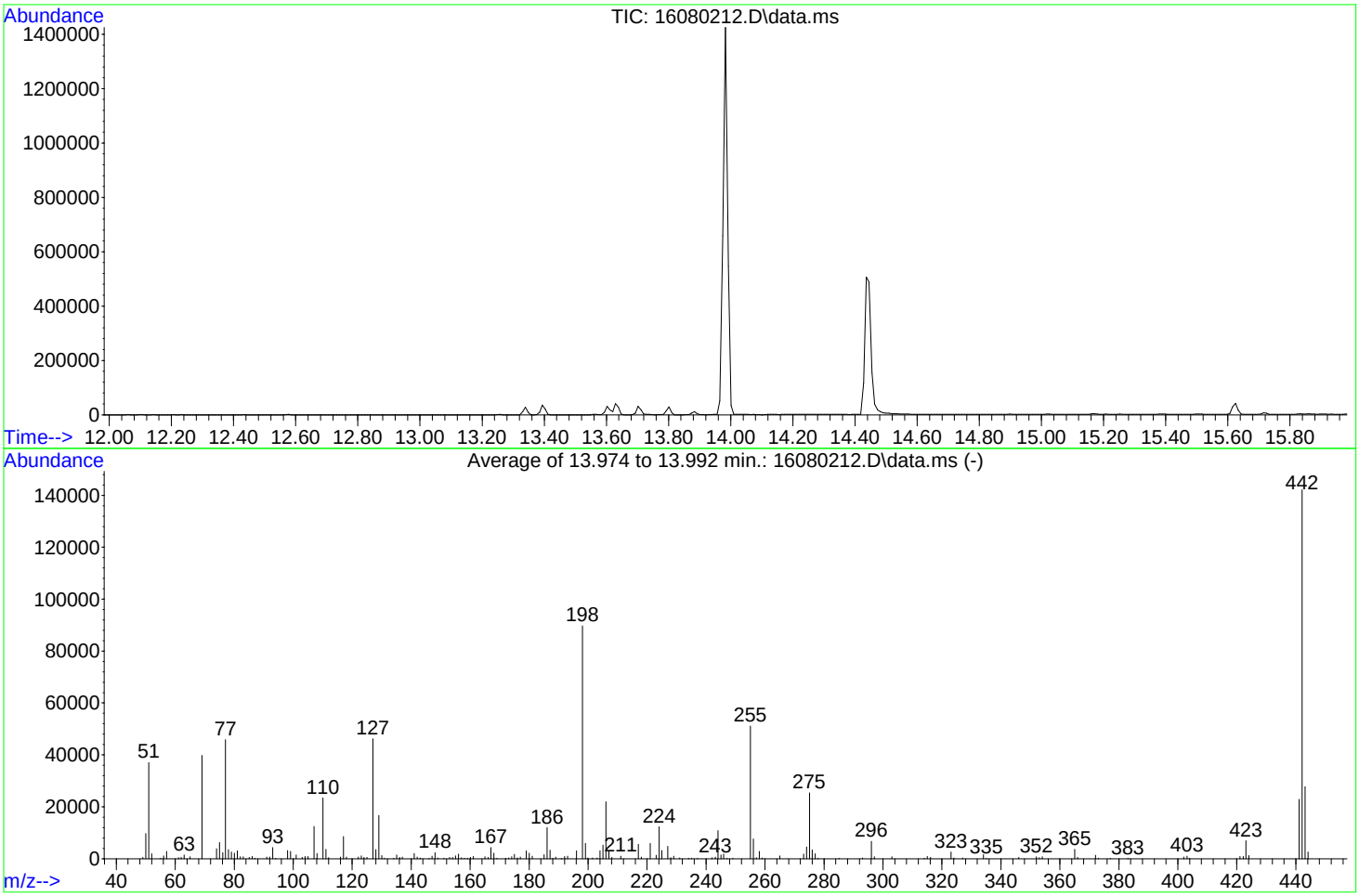
On A Barcode Mismatch
(X) Inject Anyway
( ) Don't Inject

	Line		Sample Name/Misc Info		
1)	Sample	1	16080201	DFTPPPCB	DFTPP-160802
2)	Sample	2	16080202	1660-160609	ICV-160802
3)	Sample	3	16080203	1660-160609	ICV-160802
4)	Sample	3	16080204	1660-160609	ICV-160803
5)	Sample	1	16080205	DFTPPPCB	DFTPP-160802
6)	Sample	2	16080206	1660-160609	ICV-160802
7)	Sample	3	16080207	1660-160609	LCS-76577-PCB
8)	Sample	4	16080208	1660-160609	LCSD-76577-PCB
9)	Sample	5	16080209	1660-160609	MB-76577
10)	Sample	6	16080210	1660-160609	1607277-01G

Data Path : C:\msdchem\1\DATA\160802\
Data File : 16080212.D
Acq On : 2 Aug 2016 5:25 pm
Operator :
Sample : DFTPP-160802
Misc : TUNE
ALS Vial : 2 Sample Multiplier: 1

Integration File: RTEINT.P

Method : C:\msdchem\1\METHODS\DFTPPPAH.M
Title : CLP BNA Calibration - Large Volume Injection
Last Update : Thu Aug 27 07:24:43 2015



AutoFind: Scans 429, 430, 431; Background Corrected with Scan 425

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	10	80	41.3	37038	PASS
68	69	0.00	2	0.0	0	PASS
69	198	0.00	100	44.4	39782	PASS
70	69	0.00	2	0.0	0	PASS
127	198	10	80	51.5	46158	PASS
197	198	0.00	2	0.0	0	PASS
198	198	100	100	100.0	89674	PASS
199	198	5	9	6.6	5912	PASS
275	198	10	60	28.4	25423	PASS
365	198	1	200	4.0	3581	PASS
441	442	0.01	24	16.0	22792	PASS
442	198	50	400	158.6	142189	PASS
443	442	15	24	19.5	27730	PASS

REVIEWED/APPROVED
By Sherri Herschmann at 9:56:14 AM, 8/10/2016

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160802\
Data File : 16080214.D
Acq On : 2 Aug 2016 6:44 pm
Operator :
Sample : CAL1 (5 ppb)
Misc : CAL1
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Aug 03 10:24:16 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 10:10:50 2016
Response via : Initial Calibration

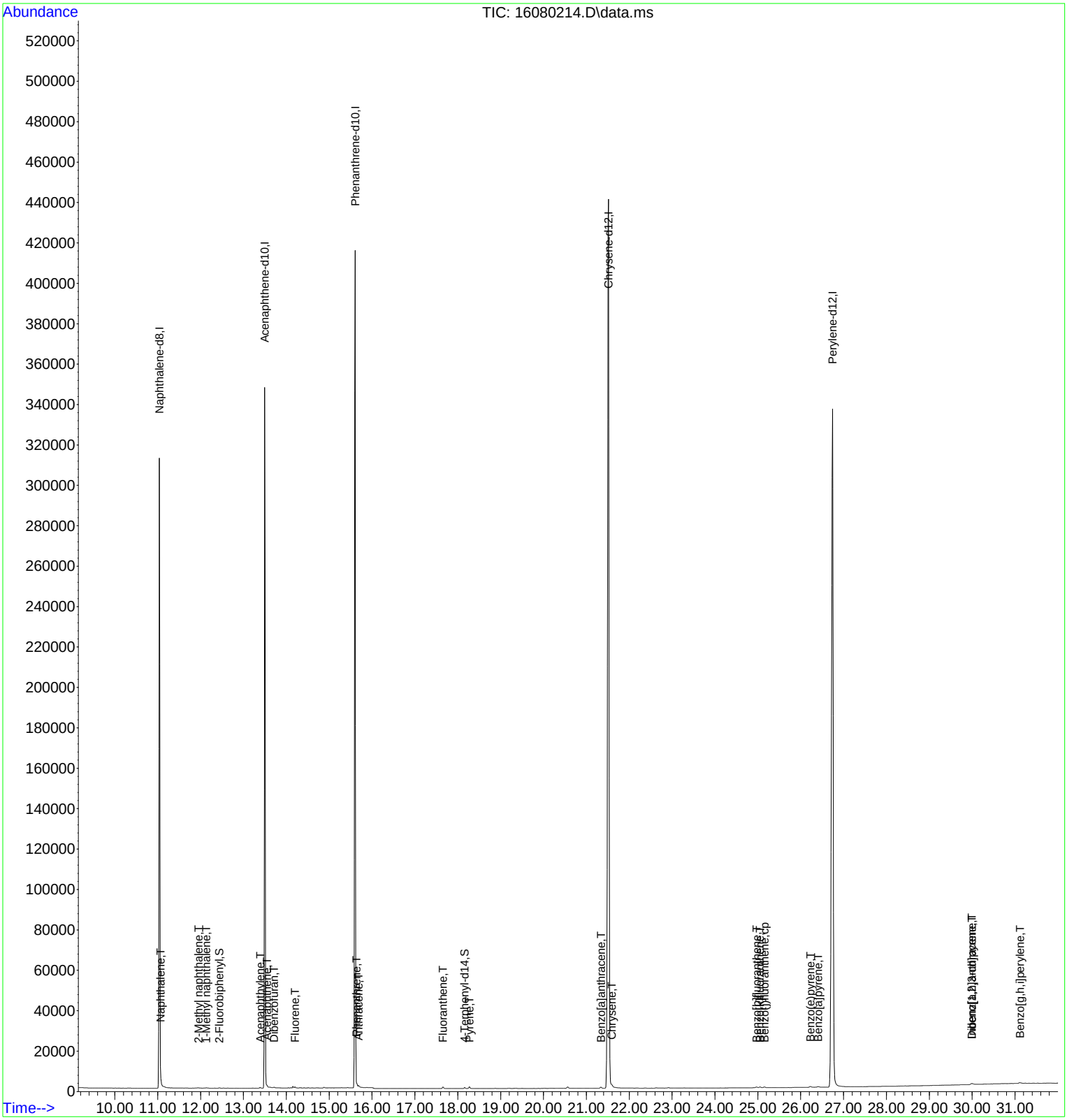
Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	11.038	136	385396	4000.00	ug/kg	98
6) Acenaphthene-d10	13.495	164	185765	4000.00	ug/kg	102
11) Phenanthrene-d10	15.605	188	486418	4000.00	ug/kg	97
17) Chrysene-d12	21.516	240	689401	4000.00	ug/kg	102
20) Perylene-d12	26.741	264	619616	4000.00	ug/kg	101
System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.436	172	332	5.19	ug/kg	0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery = 0.13%#			
15) 4-Terphenyl-d14	18.158	244	654	5.40	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery = 0.14%#			
Target Compounds						Qvalue
2) Naphthalene	11.073	128	540	5.76	ug/kg	100
3) 2-Methyl naphthalene	11.950	142	304	5.16	ug/kg	95
4) 1-Methyl naphthalene	12.132	142	279	5.15	ug/kg	97
7) Acenaphthylene	13.391	152	464	5.21	ug/kg	99
8) Acenaphthene	13.548	153	305	5.41	ug/kg	99
9) Dibenzofuran	13.713	168	430	5.38	ug/kg	75
10) Fluorene	14.199	166	362	5.36	ug/kg	99
12) Phenanthrene	15.640	178	689	5.24	ug/kg	99
13) Anthracene	15.683	178	707	5.26	ug/kg	99
14) Fluoranthene	17.651	202	949	5.38	ug/kg	95
16) Pyrene	18.271	202	1009	5.51	ug/kg	97
18) Benzo[a]anthracene	21.339	228	905	5.06	ug/kg	99
19) Chrysene	21.596	228	888	5.21	ug/kg	97
21) Benzo[b]fluoranthene	24.970	252	822	4.92	ug/kg	94
22) Benzo[k]fluoranthene	25.050	252	639	4.47	ug/kg	95
23) Benzo(j)fluoranthene	25.155	252	683	4.89	ug/kg	97
24) Benzo(e)pyrene	26.226	252	864	5.34	ug/kg	87
25) Benzo[a]pyrene	26.403	252	758	4.94	ug/kg	94
26) Indeno[1,2,3-cd]pyrene	30.002	276	841	4.64	ug/kg	95
27) Dibenz[a,h]anthracene	29.986	278	725	4.86	ug/kg	92
28) Benzo[g,h,i]perylene	31.113	276	804	5.05	ug/kg	98

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160802\
Data File : 16080214.D
Acq On : 2 Aug 2016 6:44 pm
Operator :
Sample : CAL1 (5 ppb)
Misc : CAL1
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Aug 03 10:24:16 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 10:10:50 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160802\
Data File : 16080215.D
Acq On : 2 Aug 2016 7:23 pm
Operator :
Sample : CAL2 (10 ppb)
Misc : CAL2
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Aug 03 10:24:20 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 10:10:50 2016
Response via : Initial Calibration

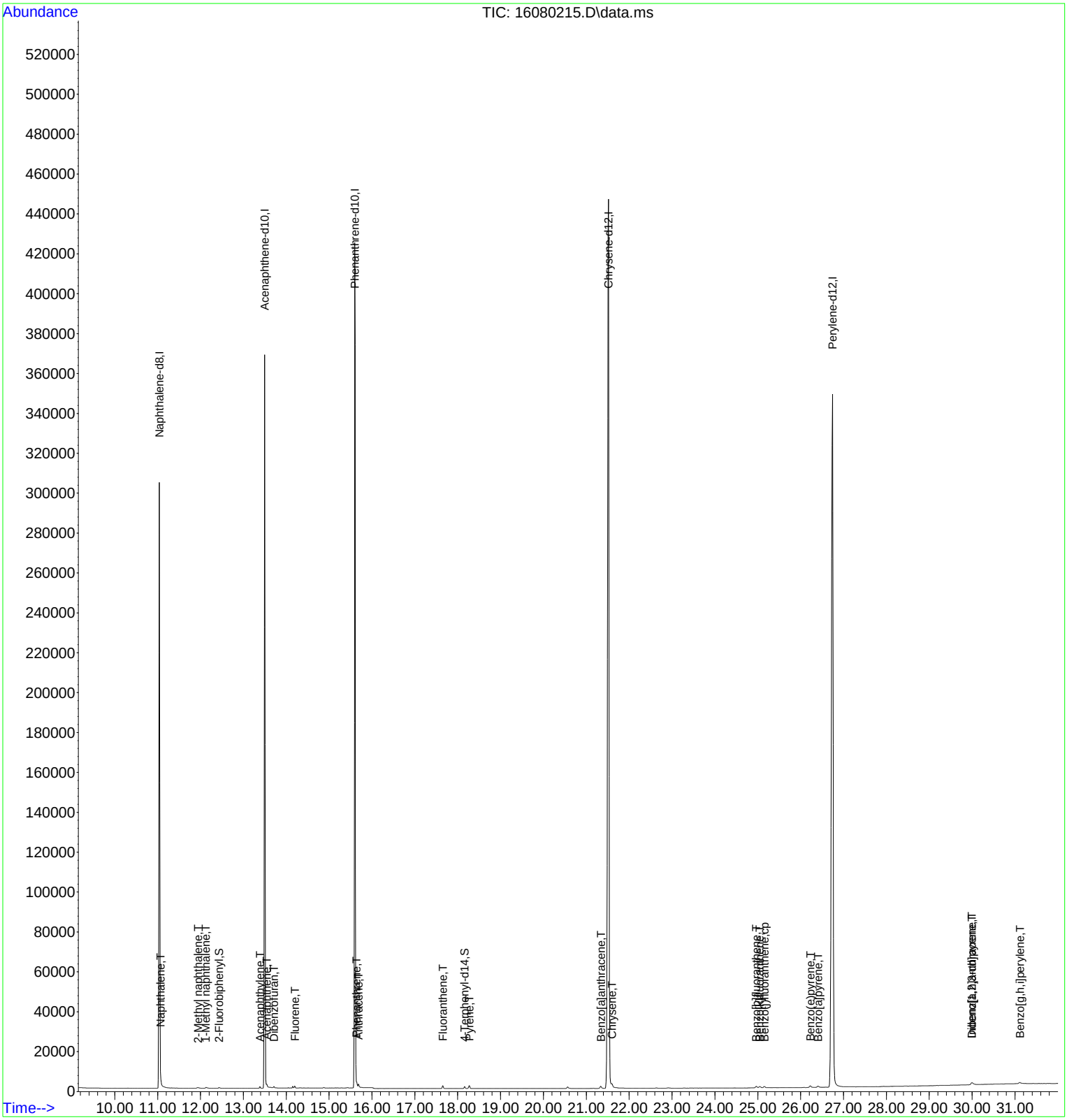
Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	11.041	136	379089	4000.00	ug/kg	97
6) Acenaphthene-d10	13.498	164	187838	4000.00	ug/kg	103
11) Phenanthrene-d10	15.599	188	505178	4000.00	ug/kg	101
17) Chrysene-d12	21.517	240	701631	4000.00	ug/kg	104
20) Perylene-d12	26.742	264	635670	4000.00	ug/kg	104
System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.430	172	647	10.29	ug/kg	0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery = 0.26%#			
15) 4-Terphenyl-d14	18.160	244	1228	9.76	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery = 0.24%#			
Target Compounds						Qvalue
2) Naphthalene	11.076	128	947	10.27	ug/kg	99
3) 2-Methyl naphthalene	11.944	142	590	10.17	ug/kg	97
4) 1-Methyl naphthalene	12.126	142	526	9.88	ug/kg	99
7) Acenaphthylene	13.385	152	880	9.77	ug/kg	99
8) Acenaphthene	13.550	153	547	9.59	ug/kg	98
9) Dibenzofuran	13.715	168	807	9.98	ug/kg	90
10) Fluorene	14.201	166	654	9.59	ug/kg	100
12) Phenanthrene	15.642	178	1509	11.05	ug/kg	99
13) Anthracene	15.686	178	1348	9.65	ug/kg	99
14) Fluoranthene	17.652	202	1758	9.59	ug/kg	98
16) Pyrene	18.272	202	1852	9.74	ug/kg	97
18) Benzo[a]anthracene	21.340	228	1639	9.01	ug/kg	99
19) Chrysene	21.598	228	1623	9.35	ug/kg	98
21) Benzo[b]fluoranthene	24.963	252	1541	8.98	ug/kg	99
22) Benzo[k]fluoranthene	25.052	252	1189	8.10	ug/kg	92
23) Benzo(j)fluoranthene	25.156	252	1282	8.95	ug/kg	97
24) Benzo(e)pyrene	26.227	252	1593	9.60	ug/kg	95
25) Benzo[a]pyrene	26.404	252	1420	9.02	ug/kg	99
26) Indeno[1,2,3-cd]pyrene	30.003	276	1673	8.99	ug/kg	96
27) Dibenz[a,h]anthracene	29.987	278	1364	8.92	ug/kg	97
28) Benzo[g,h,i]perylene	31.114	276	1529	9.36	ug/kg	99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160802\
Data File : 16080215.D
Acq On : 2 Aug 2016 7:23 pm
Operator :
Sample : CAL2 (10 ppb)
Misc : CAL2
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Aug 03 10:24:20 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 10:10:50 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160802\
Data File : 16080216.D
Acq On : 2 Aug 2016 8:03 pm
Operator :
Sample : CAL3 (50 ppb)
Misc : CAL
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Aug 03 10:24:23 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 10:10:50 2016
Response via : Initial Calibration

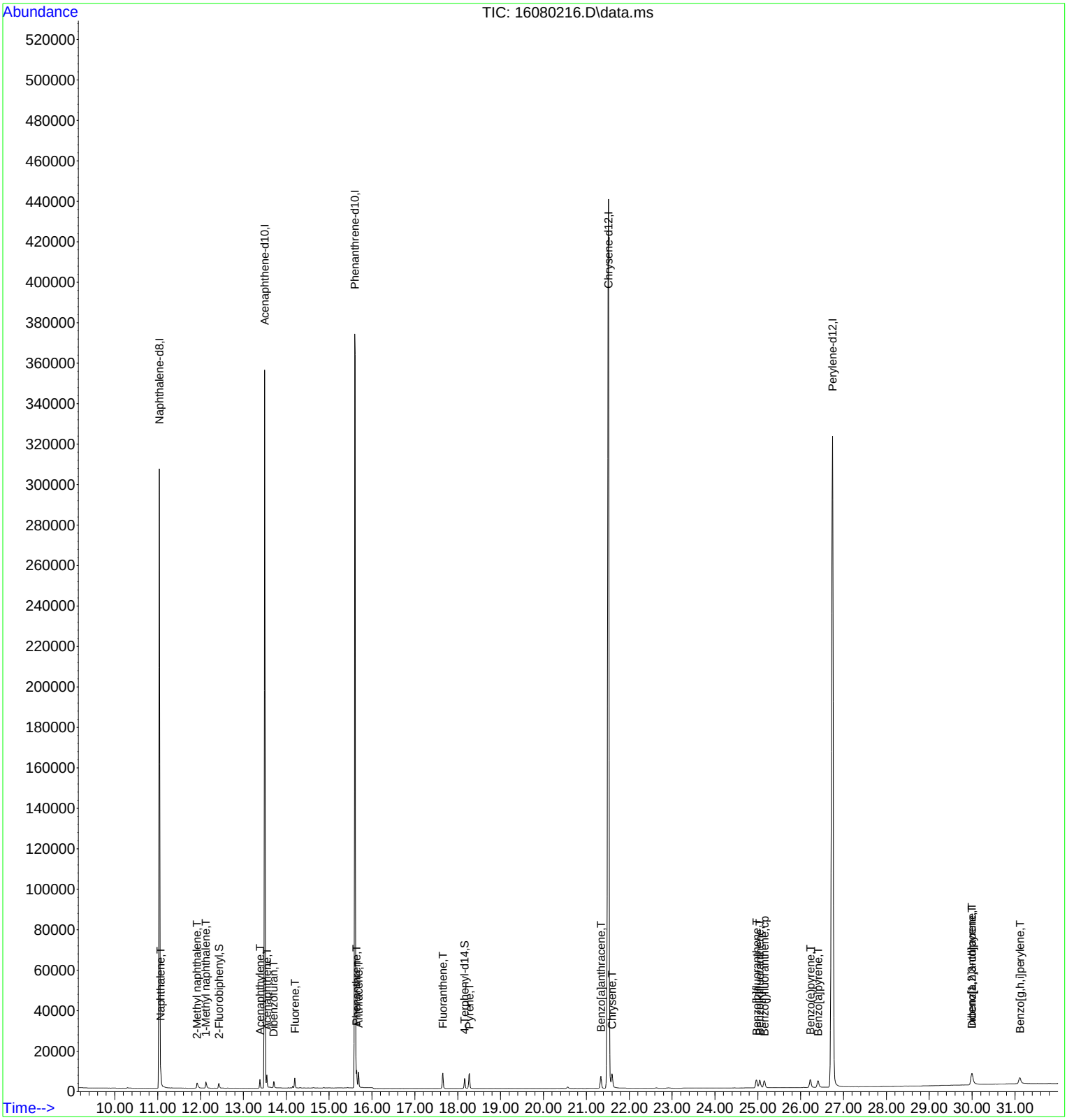
Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	11.040	136	375891	4000.00	ug/kg	96
6) Acenaphthene-d10	13.497	164	180595	4000.00	ug/kg	99
11) Phenanthrene-d10	15.607	188	464427	4000.00	ug/kg	93
17) Chrysene-d12	21.516	240	672646	4000.00	ug/kg	100
20) Perylene-d12	26.741	264	597332	4000.00	ug/kg	97
System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.429	172	3100	49.73	ug/kg	0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery = 1.24%#			
15) 4-Terphenyl-d14	18.158	244	6016	52.01	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery = 1.30%#			
Target Compounds						Qvalue
2) Naphthalene	11.075	128	4581	50.12	ug/kg	100
3) 2-Methyl naphthalene	11.926	142	2854	49.62	ug/kg	96
4) 1-Methyl naphthalene	12.125	142	2646	50.10	ug/kg	99
7) Acenaphthylene	13.384	152	4231	48.86	ug/kg	99
8) Acenaphthene	13.549	153	2750	50.13	ug/kg	98
9) Dibenzofuran	13.714	168	3777	48.59	ug/kg	96
10) Fluorene	14.200	166	3083	47.00	ug/kg	99
12) Phenanthrene	15.642	178	6193	49.32	ug/kg	100
13) Anthracene	15.685	178	6356	49.49	ug/kg	100
14) Fluoranthene	17.651	202	8515	50.54	ug/kg	96
16) Pyrene	18.271	202	8950	51.18	ug/kg	94
18) Benzo[a]anthracene	21.339	228	8316	47.68	ug/kg	99
19) Chrysene	21.596	228	8018	48.18	ug/kg	100
21) Benzo[b]fluoranthene	24.970	252	7771	48.22	ug/kg	99
22) Benzo[k]fluoranthene	25.042	252	6272	45.49	ug/kg	100
23) Benzo(j)fluoranthene	25.155	252	6480	48.12	ug/kg	98
24) Benzo(e)pyrene	26.226	252	7666	49.15	ug/kg	99
25) Benzo[a]pyrene	26.403	252	7080	47.84	ug/kg	99
26) Indeno[1,2,3-cd]pyrene	30.002	276	8423	48.19	ug/kg	96
27) Dibenz[a,h]anthracene	29.986	278	6757	47.01	ug/kg	99
28) Benzo[g,h,i]perylene	31.113	276	7515	48.94	ug/kg	99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160802\
Data File : 16080216.D
Acq On : 2 Aug 2016 8:03 pm
Operator :
Sample : CAL3 (50 ppb)
Misc : CAL
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Aug 03 10:24:23 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 10:10:50 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160802\
Data File : 16080217.D
Acq On : 2 Aug 2016 8:43 pm
Operator :
Sample : CAL4 (100 ppb)
Misc : CAL
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Aug 03 10:24:26 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 10:10:50 2016
Response via : Initial Calibration

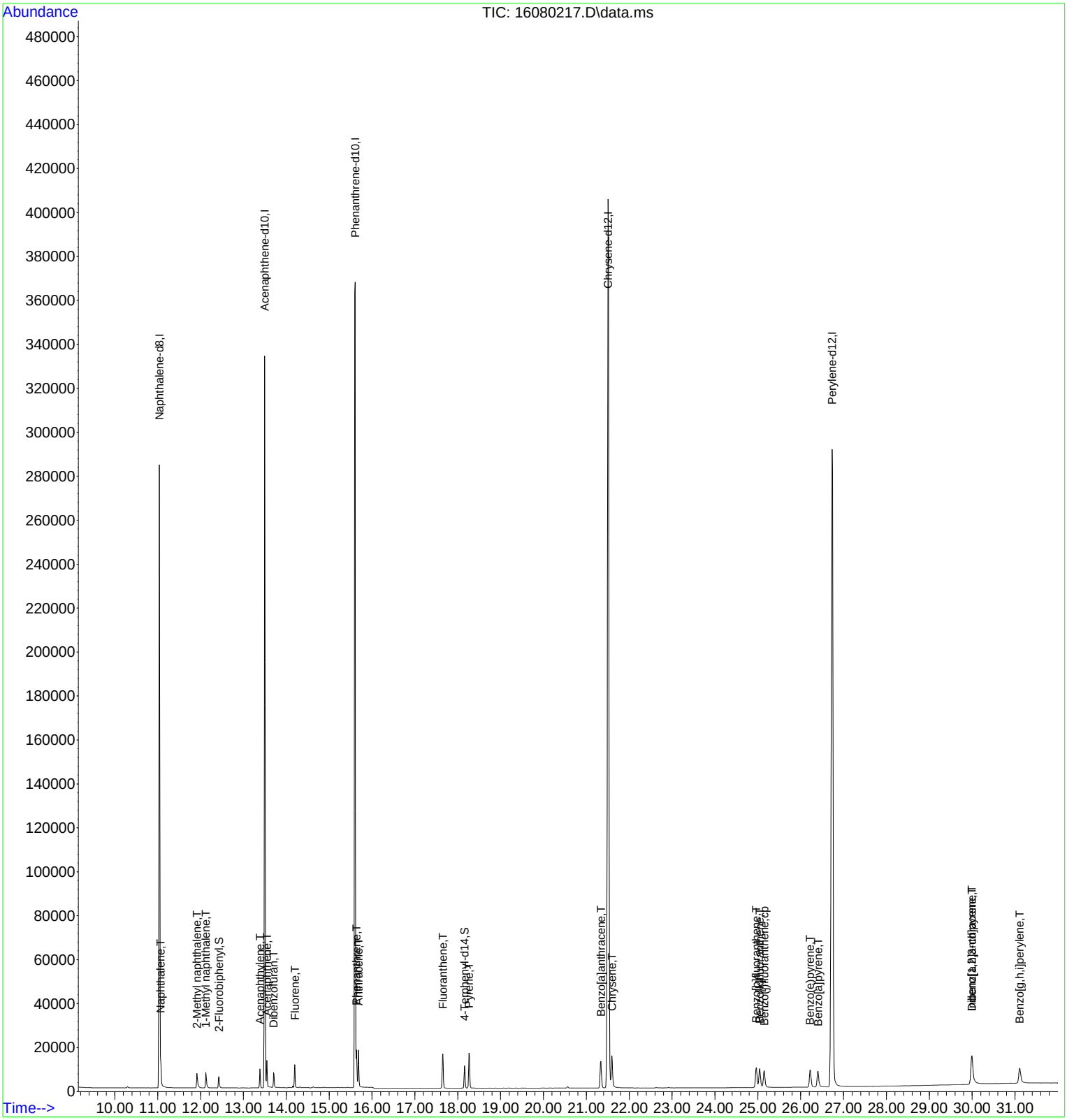
Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	11.039	136	343877	4000.00	ug/kg	88
6) Acenaphthene-d10	13.496	164	171051	4000.00	ug/kg	94
11) Phenanthrene-d10	15.606	188	460478	4000.00	ug/kg	92
17) Chrysene-d12	21.508	240	638849	4000.00	ug/kg	95
20) Perylene-d12	26.734	264	558956	4000.00	ug/kg	91
System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.428	172	6112	107.18	ug/kg	0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery = 2.68%#			
15) 4-Terphenyl-d14	18.159	244	12023	104.84	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery = 2.62%#			
Target Compounds						Qvalue
2) Naphthalene	11.074	128	8705	104.11	ug/kg	99
3) 2-Methyl naphthalene	11.916	142	5539	105.27	ug/kg	99
4) 1-Methyl naphthalene	12.124	142	5236	108.38	ug/kg	97
7) Acenaphthylene	13.383	152	8405	102.49	ug/kg	99
8) Acenaphthene	13.548	153	5402	103.97	ug/kg	99
9) Dibenzofuran	13.704	168	7582	102.99	ug/kg	71
10) Fluorene	14.199	166	6369	102.51	ug/kg	99
12) Phenanthrene	15.640	178	13188	105.94	ug/kg	99
13) Anthracene	15.684	178	14388	113.00	ug/kg	99
14) Fluoranthene	17.652	202	17768	106.37	ug/kg	94
16) Pyrene	18.264	202	18501	106.70	ug/kg	100
18) Benzo[a]anthracene	21.339	228	17710	106.92	ug/kg	99
19) Chrysene	21.597	228	17109	108.25	ug/kg	98
21) Benzo[b]fluoranthene	24.962	252	16805	111.43	ug/kg	99
22) Benzo[k]fluoranthene	25.043	252	14107	109.34	ug/kg	99
23) Benzo(j)fluoranthene	25.148	252	12862	102.07	ug/kg	98
24) Benzo(e)pyrene	26.218	252	15197	104.13	ug/kg	99
25) Benzo[a]pyrene	26.404	252	15166	109.50	ug/kg	97
26) Indeno[1,2,3-cd]pyrene	29.995	276	17985	109.95	ug/kg	97
27) Dibenz[a,h]anthracene	29.987	278	14518	107.94	ug/kg	99
28) Benzo[g,h,i]perylene	31.106	276	15672	109.07	ug/kg	97

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160802\
Data File : 16080217.D
Acq On : 2 Aug 2016 8:43 pm
Operator :
Sample : CAL4 (100 ppb)
Misc : CAL
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Aug 03 10:24:26 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 10:10:50 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160802\
Data File : 16080218.D
Acq On : 2 Aug 2016 9:22 pm
Operator :
Sample : CAL5 (500 ppb)
Misc : CAL
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Aug 03 10:24:29 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 10:10:50 2016
Response via : Initial Calibration

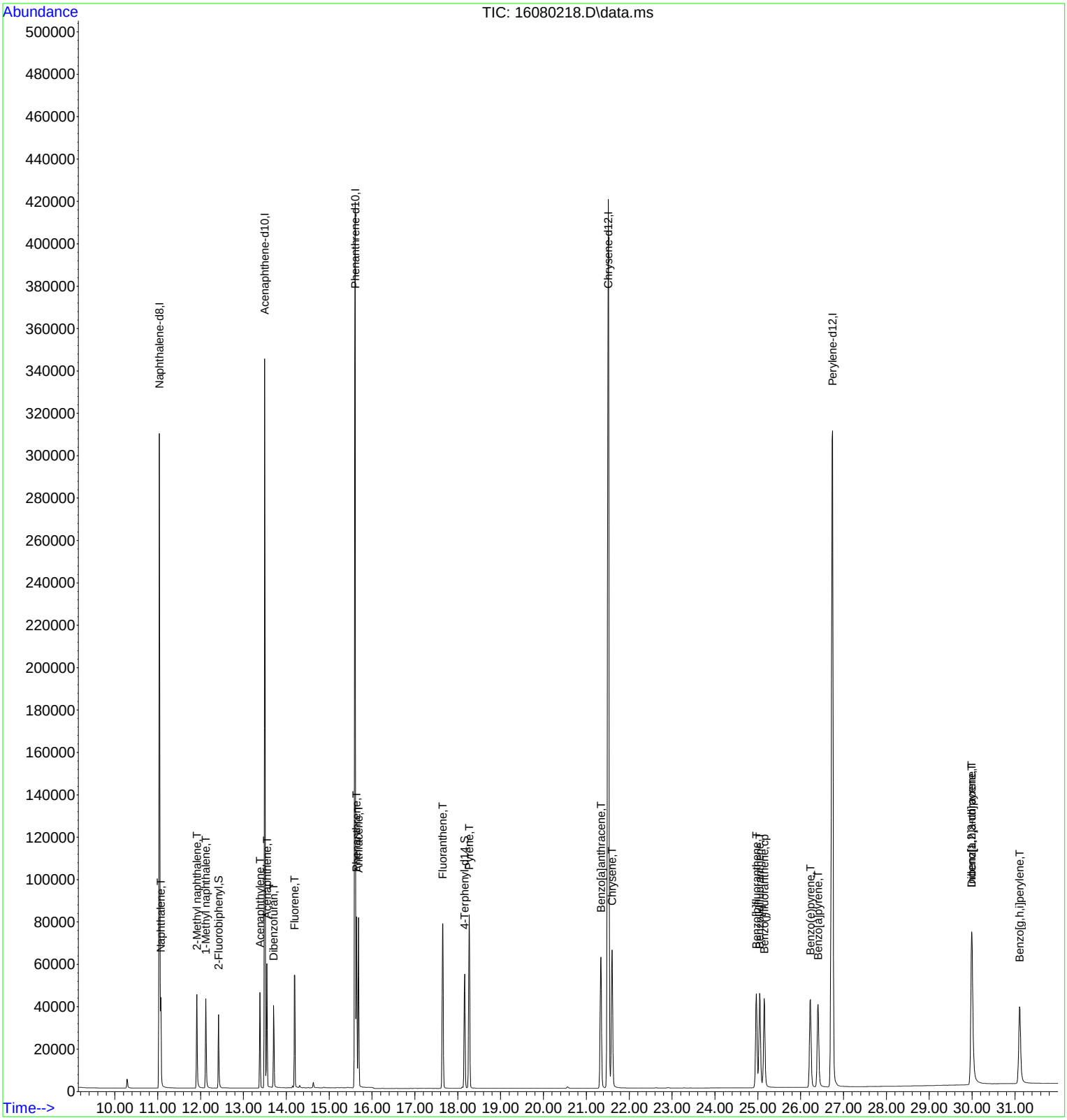
Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	11.038	136	368275	4000.00	ug/kg	94
6) Acenaphthene-d10	13.495	164	176937	4000.00	ug/kg	97
11) Phenanthrene-d10	15.605	188	485885	4000.00	ug/kg	97
17) Chrysene-d12	21.509	240	652222	4000.00	ug/kg	97
20) Perylene-d12	26.743	264	588578	4000.00	ug/kg	96
System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.419	172	30251	495.32	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 12.38%#			
15) 4-Terphenyl-d14	18.160	244	61828	510.93	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery = 12.77%#			
Target Compounds						Qvalue
2) Naphthalene	11.073	128	42986	480.06	ug/kg	99
3) 2-Methyl naphthalene	11.915	142	27883	494.84	ug/kg	96
4) 1-Methyl naphthalene	12.123	142	25752	497.71	ug/kg	97
7) Acenaphthylene	13.382	152	42130	496.62	ug/kg	99
8) Acenaphthene	13.547	153	26543	493.86	ug/kg	97
9) Dibenzofuran	13.704	168	37605	493.80	ug/kg	78
10) Fluorene	14.198	166	31546	490.83	ug/kg	99
12) Phenanthrene	15.640	178	64655	492.20	ug/kg	100
13) Anthracene	15.683	178	65057	484.21	ug/kg	99
14) Fluoranthene	17.653	202	88604	502.70	ug/kg	94
16) Pyrene	18.265	202	92404	505.03	ug/kg	99
18) Benzo[a]anthracene	21.340	228	87577	517.87	ug/kg	100
19) Chrysene	21.598	228	82501	511.27	ug/kg	99
21) Benzo[b]fluoranthene	24.963	252	81152	511.01	ug/kg	100
22) Benzo[k]fluoranthene	25.044	252	73470	540.79	ug/kg	99
23) Benzo(j)fluoranthene	25.149	252	69856	526.44	ug/kg	99
24) Benzo(e)pyrene	26.227	252	77212	502.44	ug/kg	100
25) Benzo[a]pyrene	26.405	252	75123	515.12	ug/kg	98
26) Indeno[1,2,3-cd]pyrene	29.996	276	88606	514.44	ug/kg	99
27) Dibenz[a,h]anthracene	29.988	278	72169	509.58	ug/kg	99
28) Benzo[g,h,i]perylene	31.107	276	76652	506.64	ug/kg	97

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160802\
Data File : 16080218.D
Acq On : 2 Aug 2016 9:22 pm
Operator :
Sample : CAL5 (500 ppb)
Misc : CAL
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Aug 03 10:24:29 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 10:10:50 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160802\
Data File : 16080219.D
Acq On : 2 Aug 2016 10:02 pm
Operator :
Sample : CAL6 (1000 ppb)
Misc : CAL
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Aug 03 10:24:32 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 10:10:50 2016
Response via : Initial Calibration

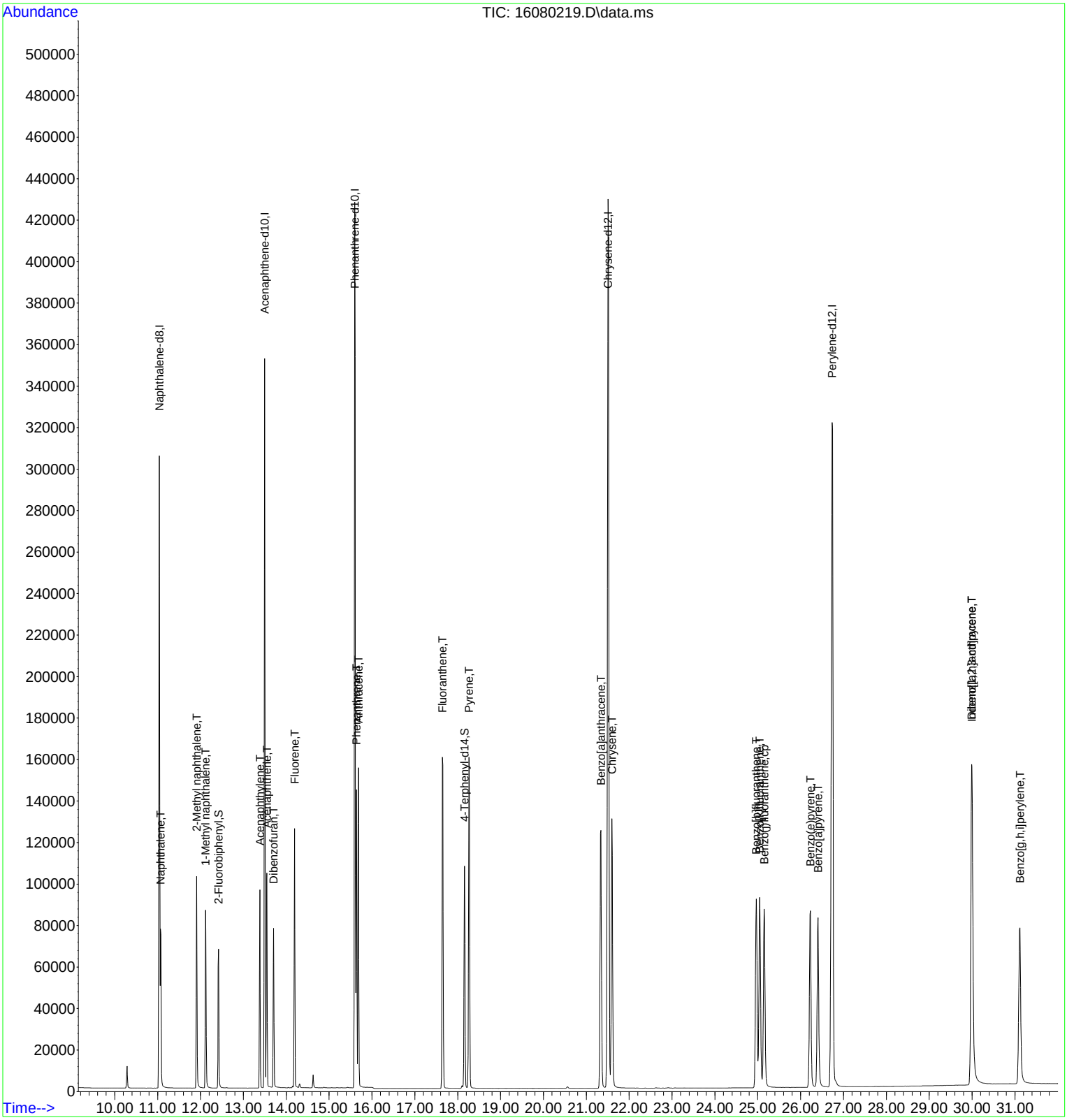
Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	11.040	136	386528	4000.00	ug/kg	98
6) Acenaphthene-d10	13.497	164	183850	4000.00	ug/kg	101
11) Phenanthrene-d10	15.598	188	503015	4000.00	ug/kg	101
17) Chrysene-d12	21.509	240	674037	4000.00	ug/kg	100
20) Perylene-d12	26.734	264	614870	4000.00	ug/kg	100
System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.420	172	61248	955.51	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 23.89%#			
15) 4-Terphenyl-d14	18.159	244	121618	970.79	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery = 24.27%#			
Target Compounds						Qvalue
2) Naphthalene	11.075	128	87297	928.87	ug/kg	99
3) 2-Methyl naphthalene	11.908	142	56717	959.02	ug/kg	99
4) 1-Methyl naphthalene	12.117	142	52067	958.79	ug/kg	99
7) Acenaphthylene	13.384	152	85164	966.14	ug/kg	100
8) Acenaphthene	13.549	153	53195	952.53	ug/kg	97
9) Dibenzofuran	13.705	168	75106	949.15	ug/kg	95
10) Fluorene	14.192	166	63783	955.09	ug/kg	99
12) Phenanthrene	15.642	178	125420	922.27	ug/kg	100
13) Anthracene	15.685	178	133772	961.74	ug/kg	100
14) Fluoranthene	17.644	202	176788	968.87	ug/kg	99
16) Pyrene	18.264	202	180373	952.26	ug/kg	99
18) Benzo[a]anthracene	21.340	228	176880	1012.10	ug/kg	100
19) Chrysene	21.597	228	165784	994.14	ug/kg	99
21) Benzo[b]fluoranthene	24.963	252	165843	999.64	ug/kg	99
22) Benzo[k]fluoranthene	25.043	252	151774	1069.39	ug/kg	100
23) Benzo(j)fluoranthene	25.148	252	141728	1022.41	ug/kg	99
24) Benzo(e)pyrene	26.227	252	157087	978.50	ug/kg	100
25) Benzo[a]pyrene	26.404	252	152694	1002.25	ug/kg	98
26) Indeno[1,2,3-cd]pyrene	30.003	276	183022	1017.18	ug/kg	93
27) Dibenz[a,h]anthracene	29.987	278	150487	1017.15	ug/kg	100
28) Benzo[g,h,i]perylene	31.114	276	154189	975.54	ug/kg	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160802\
Data File : 16080219.D
Acq On : 2 Aug 2016 10:02 pm
Operator :
Sample : CAL6 (1000 ppb)
Misc : CAL
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Aug 03 10:24:32 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 10:10:50 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160802\
Data File : 16080220.D
Acq On : 2 Aug 2016 10:42 pm
Operator :
Sample : CAL7 (2000 ppb)
Misc : CAL
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Aug 03 10:24:35 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 10:10:50 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	11.041	136	392416	4000.00	ug/kg	100
6) Acenaphthene-d10	13.498	164	182713	4000.00	ug/kg	100
11) Phenanthrene-d10	15.599	188	499349	4000.00	ug/kg	100
17) Chrysene-d12	21.509	240	673020	4000.00	ug/kg	100
20) Perylene-d12	26.742	264	612847	4000.00	ug/kg	100

System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.413	172	124577	1914.32	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 47.86%			
15) 4-Terphenyl-d14	18.160	244	245963	1977.75	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery = 49.44%#			

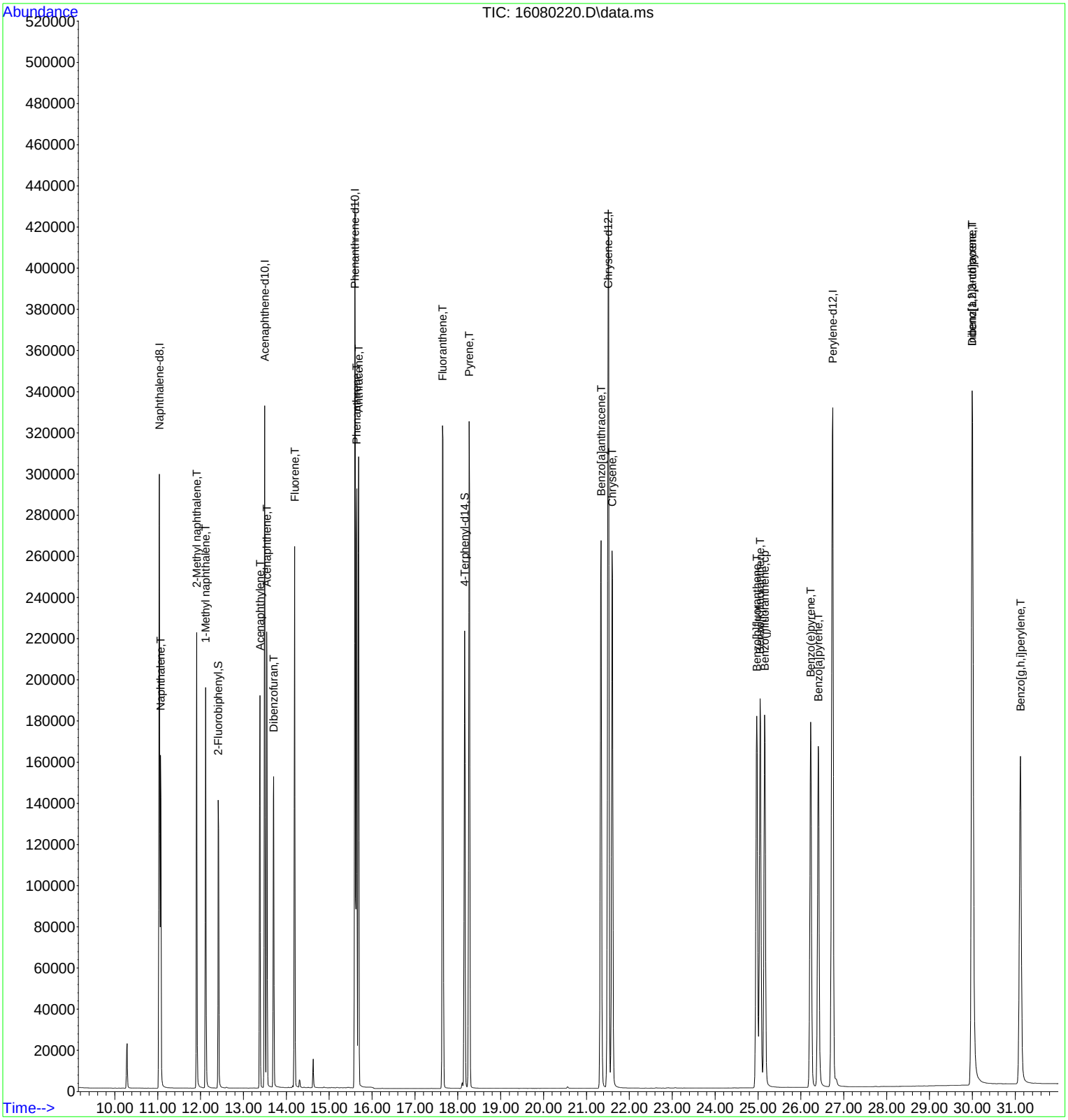
Target Compounds						Qvalue
2) Naphthalene	11.067	128	178638	1872.25	ug/kg	100
3) 2-Methyl naphthalene	11.909	142	116176	1934.93	ug/kg	100
4) 1-Methyl naphthalene	12.117	142	106548	1932.59	ug/kg	100
7) Acenaphthylene	13.385	152	174601	1993.09	ug/kg	100
8) Acenaphthene	13.541	153	108721	1958.92	ug/kg	100
9) Dibenzofuran	13.706	168	152226	1935.72	ug/kg	100
10) Fluorene	14.192	166	130611	1967.95	ug/kg	100
12) Phenanthrene	15.642	178	254637	1886.22	ug/kg	100
13) Anthracene	15.686	178	267809	1939.53	ug/kg	100
14) Fluoranthene	17.644	202	361336	1994.80	ug/kg	100
16) Pyrene	18.264	202	369951	1967.45	ug/kg	100
18) Benzo[a]anthracene	21.340	228	362283	2076.10	ug/kg	100
19) Chrysene	21.598	228	334873	2011.13	ug/kg	100
21) Benzo[b]fluoranthene	24.971	252	343274	2075.96	ug/kg	100
22) Benzo[k]fluoranthene	25.052	252	312137	2206.56	ug/kg	100
23) Benzo(j)fluoranthene	25.156	252	294707	2133.00	ug/kg	100
24) Benzo(e)pyrene	26.227	252	323026	2018.78	ug/kg	100
25) Benzo[a]pyrene	26.404	252	315127	2075.24	ug/kg	100
26) Indeno[1,2,3-cd]pyrene	30.003	276	378254	2109.15	ug/kg	100
27) Dibenz[a,h]anthracene	29.995	278	312978	2122.41	ug/kg	100
28) Benzo[g,h,i]perylene	31.122	276	318362	2020.90	ug/kg	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160802\
Data File : 16080220.D
Acq On : 2 Aug 2016 10:42 pm
Operator :
Sample : CAL7 (2000 ppb)
Misc : CAL
ALS Vial : 10 Sample Multiplier: 1

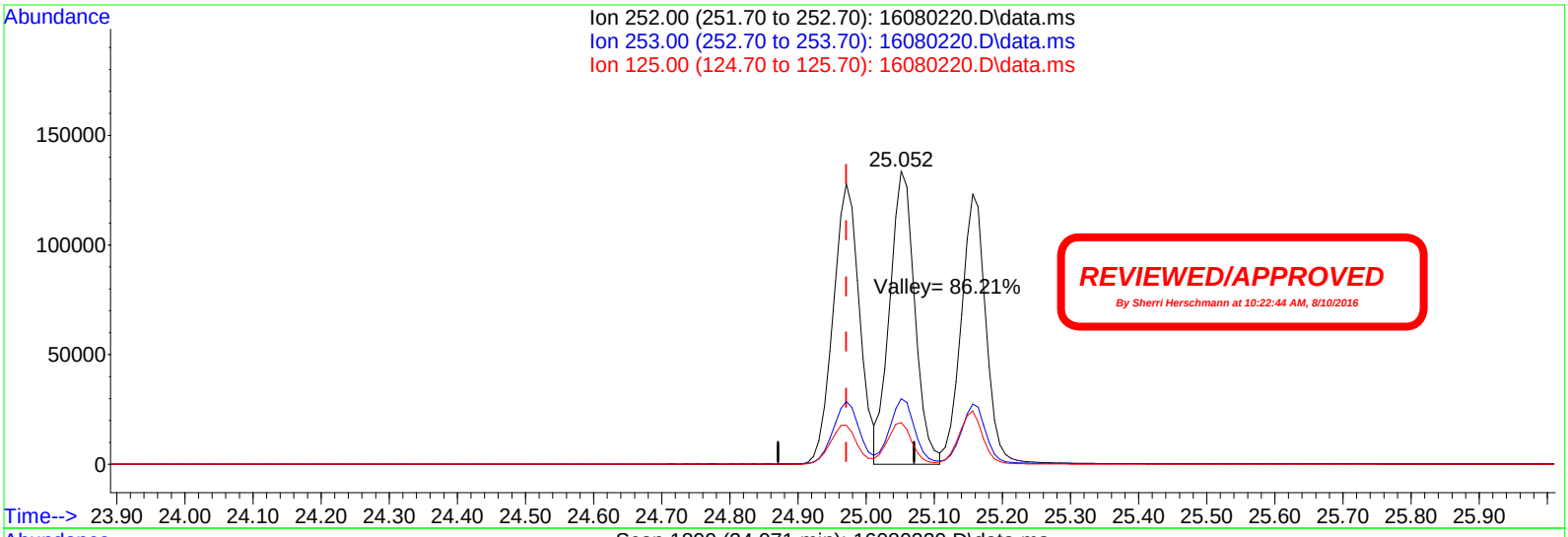
Quant Time: Aug 03 10:24:35 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 10:10:50 2016
Response via : Initial Calibration

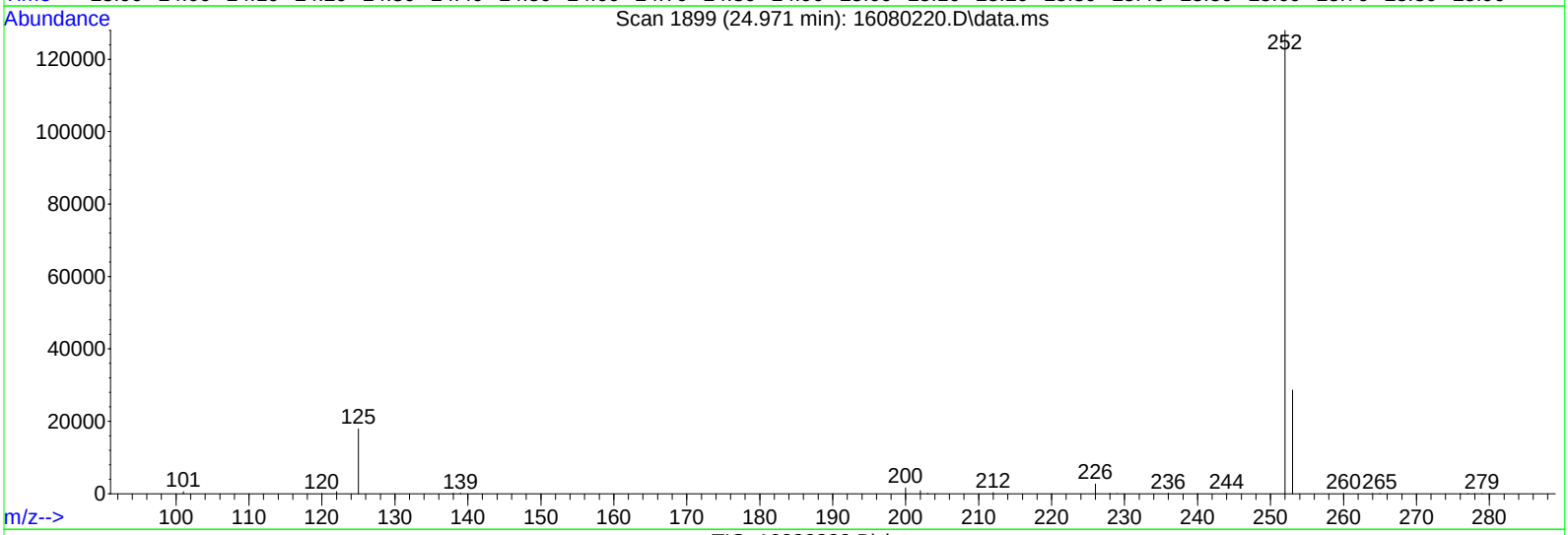


Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\160802\
Data File : 16080220.D
Acq On : 2 Aug 2016 10:42 pm
Operator :
Sample : CAL7 (2000 ppb)
Misc : CAL
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Aug 03 10:24:35 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 10:10:50 2016
Response via : Initial Calibration





TIC: 16080220.D\data.ms

(21) Benzo[b]fluoranthene (T)

24.971min (+0.000) 2075.96ug/kg

response 343274

Ion	Exp%	Act%
252.00	100	100
253.00	22.10	22.12
125.00	13.90	13.91
0.00	0.00	0.00

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160802\
Data File : 16080221.D
Acq On : 2 Aug 2016 11:22 pm
Operator :
Sample : CAL8 (5000 ppb)
Misc : CAL
ALS Vial : 11 Sample Multiplier: 1

Quant Time: Aug 03 10:24:38 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 10:10:50 2016
Response via : Initial Calibration

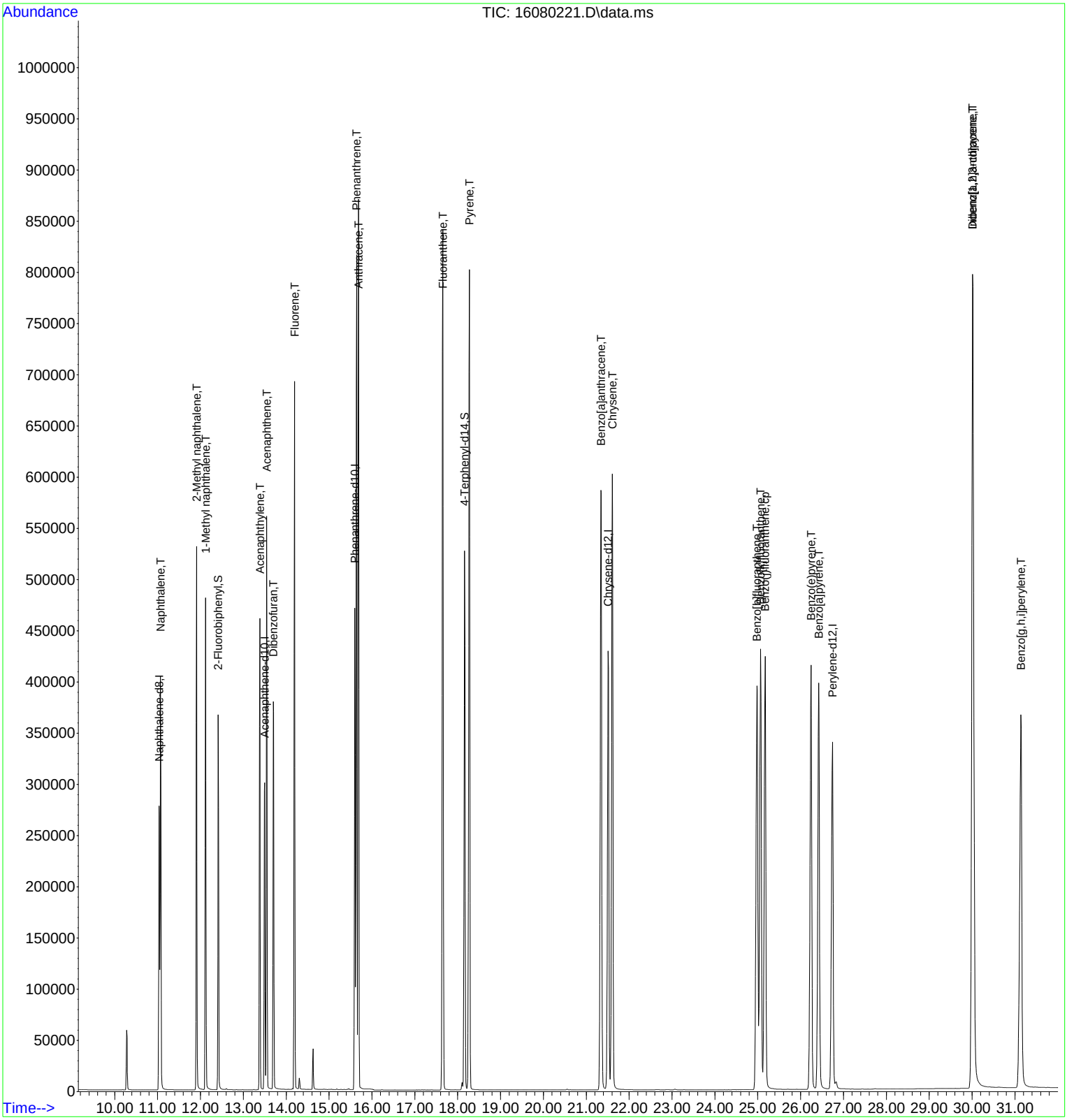
Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	11.033	136	373369	4000.00	ug/kg	95
6) Acenaphthene-d10	13.498	164	175178	4000.00	ug/kg	96
11) Phenanthrene-d10	15.600	188	536214	4000.00	ug/kg	107
17) Chrysene-d12	21.509	240	675690	4000.00	ug/kg	100
20) Perylene-d12	26.743	264	617609	4000.00	ug/kg	101
System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.413	172	297892	4811.08	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 120.28%			
15) 4-Terphenyl-d14	18.160	244	583710	4370.85	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery = 109.27%			
Target Compounds						Qvalue
2) Naphthalene	11.067	128	431837	4756.84	ug/kg	100
3) 2-Methyl naphthalene	11.910	142	282882	4951.78	ug/kg	99
4) 1-Methyl naphthalene	12.118	142	255849	4877.39	ug/kg	99
7) Acenaphthylene	13.386	152	429570	5114.51	ug/kg	99
8) Acenaphthene	13.542	153	265597	4991.34	ug/kg	99
9) Dibenzofuran	13.707	168	384477	5099.35	ug/kg	100
10) Fluorene	14.193	166	344510	5414.09	ug/kg	99
12) Phenanthrene	15.643	178	689747	4758.01	ug/kg	98
13) Anthracene	15.686	178	714677	4819.99	ug/kg	98
14) Fluoranthene	17.653	202	893543	4593.78	ug/kg	100
16) Pyrene	18.273	202	896708	4440.95	ug/kg	99
18) Benzo[a]anthracene	21.348	228	856483	4888.77	ug/kg	99
19) Chrysene	21.606	228	798613	4777.24	ug/kg	99
21) Benzo[b]fluoranthene	24.988	252	816512	4899.81	ug/kg	99
22) Benzo[k]fluoranthene	25.068	252	740334	5193.21	ug/kg	99
23) Benzo(j)fluoranthene	25.173	252	698109	5013.74	ug/kg	99
24) Benzo(e)pyrene	26.244	252	769905	4774.49	ug/kg	99
25) Benzo[a]pyrene	26.421	252	756854	4945.77	ug/kg	99
26) Indeno[1,2,3-cd]pyrene	30.020	276	911879	5045.44	ug/kg	93
27) Dibenz[a,h]anthracene	30.012	278	756782	5092.43	ug/kg	96
28) Benzo[g,h,i]perylene	31.139	276	782544	4929.14	ug/kg	96

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160802\
Data File : 16080221.D
Acq On : 2 Aug 2016 11:22 pm
Operator :
Sample : CAL8 (5000 ppb)
Misc : CAL
ALS Vial : 11 Sample Multiplier: 1

Quant Time: Aug 03 10:24:38 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 10:10:50 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160802\
Data File : 16080222.D
Acq On : 3 Aug 2016 12:02 am
Operator :
Sample : SSCV (2500 ppb)
Misc : ICV
ALS Vial : 12 Sample Multiplier: 1

SSCV FOR DIBENZOFURAN AND BENZO(J)FLUORANTHENE.

Quant Time: Aug 03 10:24:41 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 10:10:50 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	11.039	136	409796	4000.00	ug/kg	104
6) Acenaphthene-d10	13.496	164	199013	4000.00	ug/kg	109
11) Phenanthrene-d10	15.597	188	416210	4000.00	ug/kg	83
17) Chrysene-d12	21.508	240	579641	4000.00	ug/kg	86
20) Perylene-d12	26.733	264	555774	4000.00	ug/kg	91

System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.445	172	17	0.25	ug/kg	0.03
Spiked Amount 4000.000	Range 40 - 140		Recovery = 0.01%#			
15) 4-Terphenyl-d14	18.158	244	83	0.80	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery = 0.02%#			

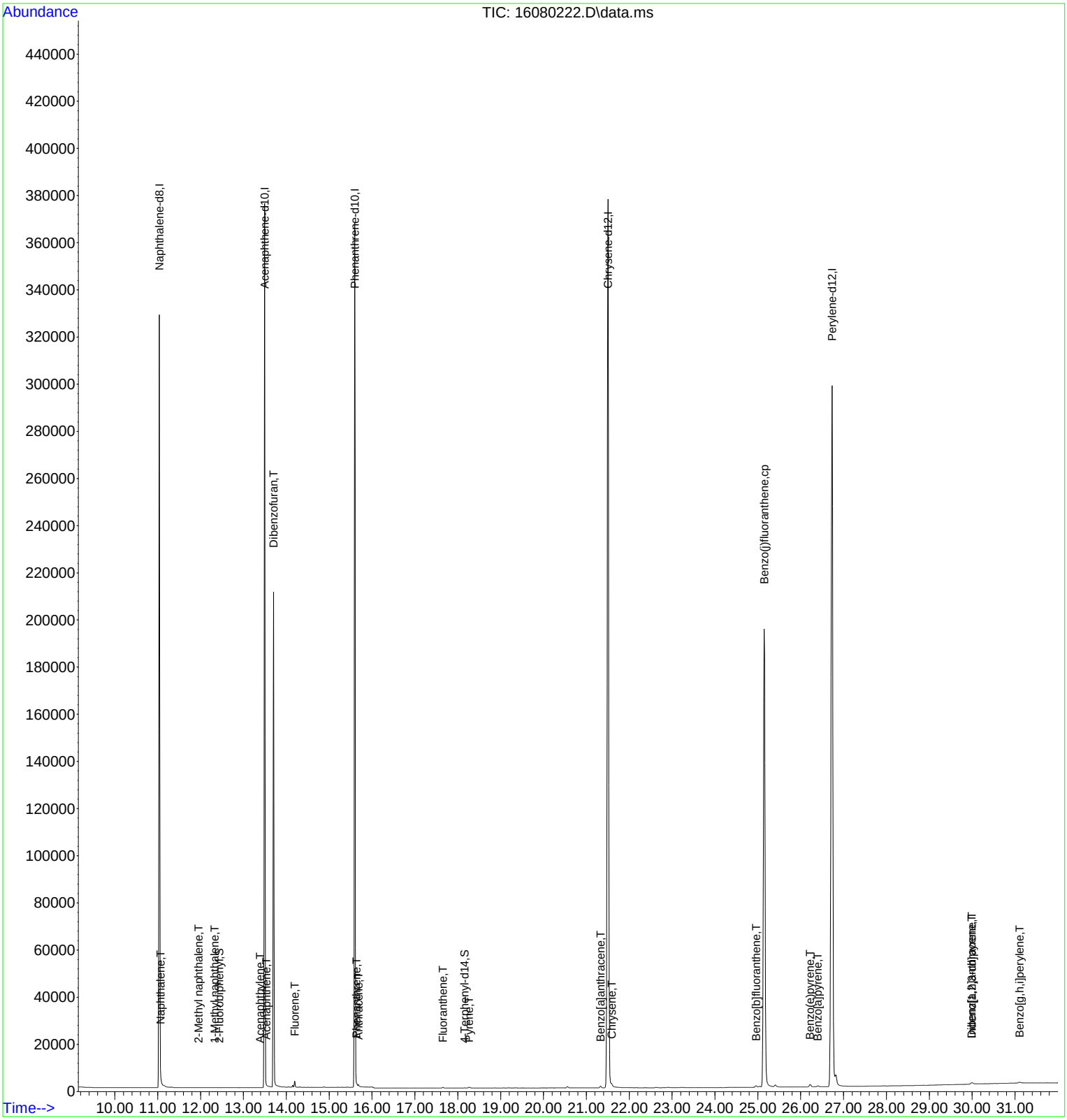
Target Compounds						Qvalue
2) Naphthalene	11.074	128	64	0.64	ug/kg	87
3) 2-Methyl naphthalene	11.950	142	46	0.73	ug/kg	89
4) 1-Methyl naphthalene	12.315	142	3	0.05	ug/kg	91
7) Acenaphthylene	13.383	152	54	0.57	ug/kg	92
8) Acenaphthene	13.539	153	55	0.91	ug/kg	95
9) Dibenzofuran	13.704	168	201819	2356.16	ug/kg	95
10) Fluorene	14.199	166	1707	23.61	ug/kg	98
12) Phenanthrene	15.640	178	344	3.06	ug/kg	95
13) Anthracene	15.684	178	786	6.83	ug/kg	98
14) Fluoranthene	17.651	202	470	3.11	ug/kg	93
16) Pyrene	18.263	202	542	3.46	ug/kg	97
18) Benzo[a]anthracene	21.331	228	1114	7.41	ug/kg	100
19) Chrysene	21.588	228	1022	7.13	ug/kg	98
21) Benzo[b]fluoranthene	24.962	252	1420	9.47	ug/kg	97
22) Benzo[k]fluoranthene	0.000	252	0	N.D.		
23) Benzo(j)fluoranthene	25.147	252	340750	2719.50	ug/kg	100
24) Benzo(e)pyrene	26.218	252	2186	15.06	ug/kg	92
25) Benzo[a]pyrene	26.395	252	1015	7.37	ug/kg	91
26) Indeno[1,2,3-cd]pyrene	29.994	276	1140	7.01	ug/kg	97
27) Dibenz[a,h]anthracene	29.978	278	865	6.47	ug/kg	94
28) Benzo[g,h,i]perylene	31.105	276	977	6.84	ug/kg	99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160802\
Data File : 16080222.D
Acq On : 3 Aug 2016 12:02 am
Operator :
Sample : SSCV (2500 ppb)
Misc : ICV
ALS Vial : 12 Sample Multiplier: 1

Quant Time: Aug 03 10:24:41 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 10:10:50 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160802\
Data File : 16080223.D
Acq On : 3 Aug 2016 12:41 am
Operator :
Sample : SSCV (2500 ppb)
Misc : ICV
ALS Vial : 13 Sample Multiplier: 1

Quant Time: Aug 03 10:24:44 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 10:10:50 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	11.038	136	354743	4000.00	ug/kg	90
6) Acenaphthene-d10	13.495	164	172034	4000.00	ug/kg	94
11) Phenanthrene-d10	15.596	188	502241	4000.00	ug/kg	101
17) Chrysene-d12	21.509	240	626135	4000.00	ug/kg	93
20) Perylene-d12	26.735	264	562739	4000.00	ug/kg	92
System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.419	172	159493	2711.13	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 67.78%			
15) 4-Terphenyl-d14	18.160	244	329186	2631.70	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery = 65.79%			
Target Compounds						Qvalue
2) Naphthalene	11.073	128	203065	2354.28	ug/kg	99
3) 2-Methyl naphthalene	11.906	142	161750	2980.06	ug/kg	99
4) 1-Methyl naphthalene	12.123	142	142715	2863.50	ug/kg	95
7) Acenaphthylene	13.382	152	202502	2455.08	ug/kg	99
8) Acenaphthene	13.547	153	132224	2530.28	ug/kg	96
9) Dibenzofuran	13.712	168	495	6.69	ug/kg	88
10) Fluorene	14.190	166	163278	2612.86	ug/kg	99
12) Phenanthrene	15.640	178	319541	2353.36	ug/kg	99
13) Anthracene	15.683	178	319725	2302.18	ug/kg	99
14) Fluoranthene	17.645	202	446111	2448.63	ug/kg	99
16) Pyrene	18.264	202	451874	2389.28	ug/kg	99
18) Benzo[a]anthracene	21.340	228	413562	2547.42	ug/kg	100
19) Chrysene	21.598	228	341645	2205.44	ug/kg	100
21) Benzo[b]fluoranthene	24.971	252	396136	2608.96	ug/kg	100
22) Benzo[k]fluoranthene	25.052	252	366344	2820.36	ug/kg	99
23) Benzo(j)fluoranthene	0.000	252	0	N.D.		
24) Benzo(e)pyrene	26.227	252	383637	2611.06	ug/kg	100
25) Benzo[a]pyrene	26.405	252	367902	2638.52	ug/kg	99
26) Indeno[1,2,3-cd]pyrene	30.004	276	425376	2583.10	ug/kg	99
27) Dibenz[a,h]anthracene	29.995	278	349484	2581.00	ug/kg	100
28) Benzo[g,h,i]perylene	31.123	276	362596	2506.64	ug/kg	100

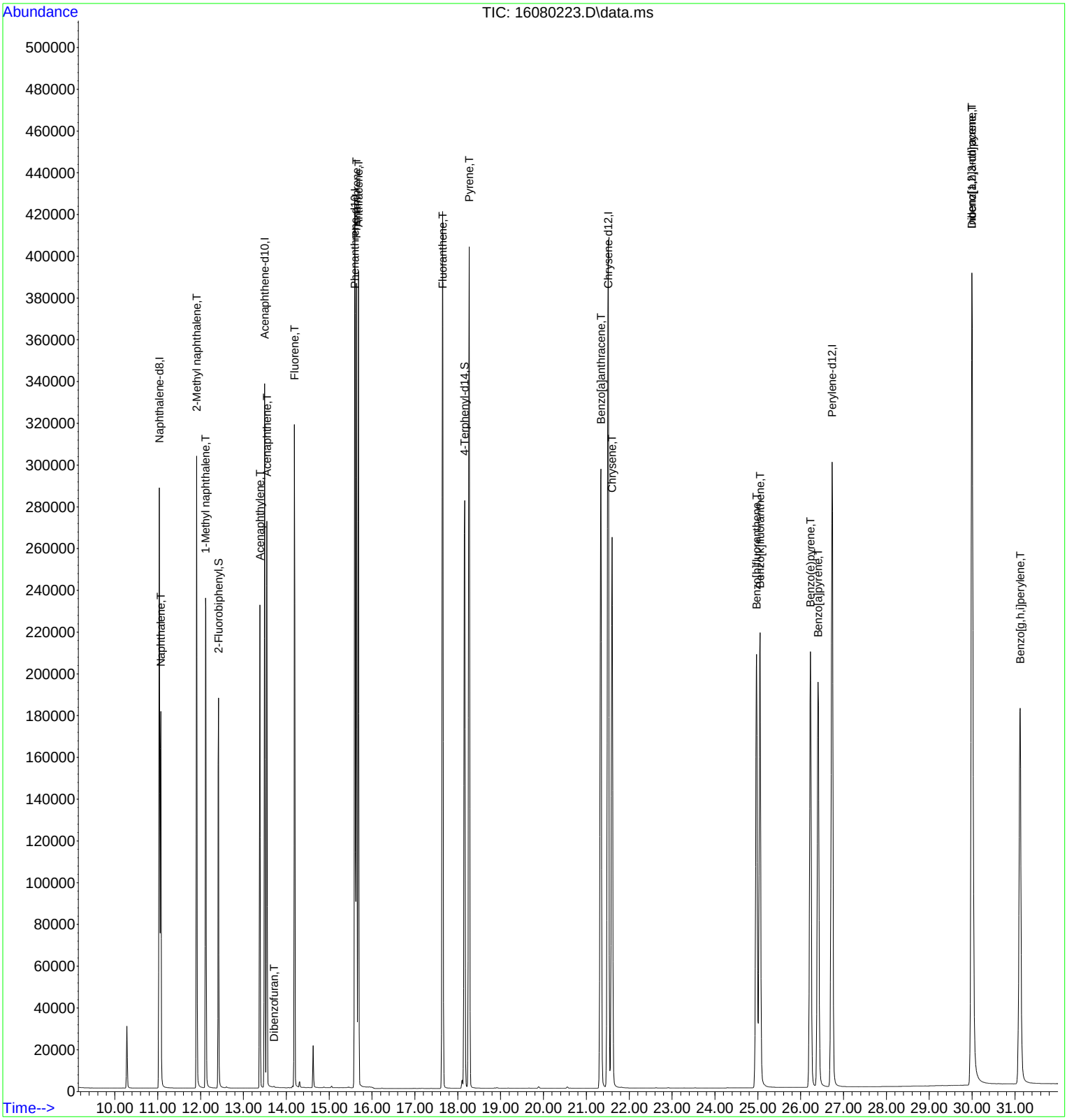
(#) = qualifier out of range (m) = manual integration (+) = signals summed

REVIEWED/APPROVED
By Sherri Herschmann at 10:31:43 AM, 8/10/2016

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160802\
Data File : 16080223.D
Acq On : 3 Aug 2016 12:41 am
Operator :
Sample : SSCV (2500 ppb)
Misc : ICV
ALS Vial : 13 Sample Multiplier: 1

Quant Time: Aug 03 10:24:44 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 10:10:50 2016
Response via : Initial Calibration



ICP-MS3
For

DHL Work Order
1607314

ICP-MS3_160809B
For

DHL Work Order
1607314

Lab Data Review Check List
EPA Method 6020 / 6020A / 200.8 - Trace Metals by ICP-MS

PROJECT AND BATCH NUMBERS ARE LISTED ON THE RUN LOG	Run ID: ICP-MS3_160809B SOP: MET-ICPMS-01			
Review Item	**Yes**	**No**	**N/A**	**2nd Level Review**
Data Folder Contents 1. Is the Prep Batch Report included? ***Check the Prep Start/End Dates, Sample Amounts, Bottle #s***	X			
2. Are the reagents and spikes listed on the Prep Batch Report current with a valid expiration date? ***All standard/QC sample preparations shall be documented in LIMS***	X			x
3. Is the Run Log and instrument sequence included? ***Check the Test Code, Sample Type, Batch ID, and Analysis Date/Time***	X			

Daily Demonstration of Performance

QC items that do not meet method/SOP/project requirements will be described on the run log. All variances that impact data quality will be described in the Variance/Comment Section on page 2.

Review Item	Frequency	Limits	Pass	Fail (List Batch/Sample) **See Run Log**		2nd Level Review
Tune	Before ICAL	RSD ≤ 5% / Peak Width@10% <0.9amu	X			
P/A Factor	Before ICAL	Increasing trend	X			x
Initial Calibration Curve (ICAL) (Blank + 4 Standards)	Prior to samples and when ICV fails	R ≥ 0.995 (DoD) R ≥ 0.998 (6020A)	X			
Review Item	**Frequency**	**Limits**	**Pass**	**Fail**	**N/A**	**Review**
ICSA (N/A for Method 200.8+U)	After calibration & every 12 hours	< RL (except Mn & Zn)	X			x
ICSAB (N/A for Method 200.8+U)	After calibration & every 12 hours	80-120% (correct for ICSA result)	X			
Note: LCVLs and ICSA/ICSAB are N/A for Method 200.8 or project-specific exceptions						
ICV (Second Source Verification)	After ICAL	90-110%	X			
ICB	After calibration	< MDL	X			
CCV	Every 10 samples	90-110%	X			
CCB	Every 10 samples	< MDL (ALL + DoD)	X			
Internal Standards	Every sample and QC sample	> 70% (6020A) 60-125% (200.8) 30-120% (DoD)	X			
LCVL (6020A test code)	After ICAL, every 10 samples and end of run	70-130%			X	
LCVL (All metals test codes except 200.8/6020A)	After ICAL and end of run	70-130%	X			x
Method Blank (MB)	Every Batch	< MDL / <½ RL (DoD) or <1/10 the sample/reg limit	X			
Filter/TCLP/SPLP Blank	Filter-Dissolved only TCLP / SPLP	< MDL / <½ RL (DoD) or <1/10 the sample/reg limit			X	
Lab Control Sample (LCS)	Every Batch	80-120%	X			
Lab Control Sample Dup (LCSD)	Every Batch	80-120%	X			
LCSD - RPD	Every LCS/LCSD	15 (H2O) / 20 (Soil)	X			
Matrix Spike/ Matrix Spike Duplicate (MS/MSD)	Every Batch	80-120%	X			
MSD - RPD	Every MS/MSD	15 (H2O) / 20 (Soil)	X			
Dilution Test (SD) - RPD	Every Batch	10		x		
Post Digestion Spike (PDS)	Every Batch	75-125/80-120 (6020A)	X			

Lab Data Review Check List
EPA Method 6020 / 6020A / 200.8 - Trace Metals by ICP-MS

Review Item	Criteria	Yes	No	N/A	2nd Level Review
Sample Analysis 1. Are all sample hold times met?	6 months	X			x
2. Are all samples with concentrations > the highest standard used for calibration diluted and reanalyzed?	All results > high point of ICAL must be diluted	x			
3. Are ALL reported analytes and reported results > MDL highlighted by the analyst?		X	**Confirm with analyst if LIMS result does not match Labcore**		

VARIANCE REPORT

QC items that do not meet method/SOP/project requirements will be described on the run log. All variances that impact data quality will be described in this section.

NON-CONFORMANCES / VARIANCE	Criteria	Yes	No	N/A	2nd Level
1. Are all non-conformances and corrective actions included and noted?	All deviations from the method and SOP that affect data quality	x			x
2. Does the variance require approval by the Technical Director/General Manager/QA Manager?		x			

TECHNICAL DIRECTOR / QA MANAGER APPROVAL
SIGNATURE AND DATE STAMP:

Description and Corrective Actions of QC items that do not meet method/SOP/project requirements:

****INCLUDE VARIANCE ITEM / REASON / CORRECTIVE ACTION / IMPACT ON DATA****

VARIANCE ITEM	REASON	CORRECTIVE ACTION
__ CCV out of control (± 10%)	__ Carryover from previous run	__ Reanalyze QC to confirm
__ CCB out of control (> MDL / >½ RL)	__ Cross contamination	__ Recalibrate
__ MB out of control (> RL / >½ RL)	__ Lab Artifact	__ Reprep/Reanalyze sample
__ LCS __ LCSD out of control (± 20%)	__ Prep Spike error (describe)	__ Reprep/Reanalyze Batch
__ MS __ MSD out of control (± 20%)	__ Matrix Effect	__ Reanalyze Batch/Sample/QC
__ RPD out of control for MS/MSD (15/25)	__ High Levels of Target Metals	__ Verify reagents are clean
__ Internal Standard(s) out of control (see Method)	__ Insufficient sample for QC	__ Reanalyze sample to confirm
__ No MS/MSD prepared - LCS/LCSD used instead	__ Digestion/Prep Error	__ Sample results ND w/ dilution
__ Missing QC (other than MS/MSD)	__ Analytical Error	__ Client notified and approved
__ QC sample(s) was mis-spiked	__ Client Request	__ Flag Data/ Case Narative
__ ICSA/ICSAB missing or out of control (± 20%)		__ Accept data
__ LCVL out of control (± 30%)		__ Cal Std high and sample ND
__ Other (describe below)	__ Other (describe below)	__ Other (describe below)

General Comments and Impact on Data:

Analyst: Cara Van Dyke Date of Completion: 08/10/2016

Second-Level Review: Janice Whitt Date Stamp: 8/10/2016

REVIEWED BY
By Janice Whitt at 2:34:49 PM, 8/10/2016

DHL Analytical, Inc.

Run ID: **ICP-MS3_160809B** **Run No.:** 87530

Analytical Run Date: 8/9/2016 **InstrumentID:** ICP-MS3

Analyst: Cassie Van Dyke

SampID	DF	TestCode	SampType	Batch ID	Analysis Date/Time	Q	Comments
BLANK STD 1	1	ICPMS_TWDOD	CAL	R87530	8/9/2016 12:19:00 PM		
L2-160809	1	ICPMS_TWDOD	CAL	R87530	8/9/2016 12:25:00 PM		
L-160809	1	ICPMS_TWDOD	CAL	R87530	8/9/2016 12:31:00 PM		
10X-160809	1	ICPMS_TWDOD	CAL	R87530	8/9/2016 12:37:00 PM		
5X-160809	1	ICPMS_TWDOD	CAL	R87530	8/9/2016 12:43:00 PM		
2X-160809	1	ICPMS_TWDOD	CAL	R87530	8/9/2016 12:49:00 PM		
H-160809	1	ICPMS_TWDOD	CAL	R87530	8/9/2016 12:55:00 PM		
H2-160809	1	ICPMS_TWDOD	CAL	R87530	8/9/2016 1:01:00 PM		
ICSA-160809	1	ICPMS_TWDOD	ICSA	R87530	8/9/2016 1:18:00 PM		
ICSAB-160809	1	ICPMS_TWDOD	ICSB	R87530	8/9/2016 1:24:00 PM		
ICV1-160809	1	ICPMS_TWDOD	ICV	R87530	8/9/2016 1:42:00 PM		
ICB1-160809	1	ICPMS_TWDOD	ICB	R87530	8/9/2016 1:48:00 PM		
ILCVL-160809	1	ICPMS_TWDOD	LCVL	R87530	8/9/2016 1:54:00 PM		
CCV5-160809	1	ICPMS_TWDOD	CCV	R87530	8/9/2016 10:34:00 PM		
LCVL5-160809	1	ICPMS_TWDOD	LCVL	R87530	8/9/2016 10:45:00 PM		
CCB5-160809	1	ICPMS_TWDOD	CCB	R87530	8/9/2016 10:51:00 PM		
MB-76687	1	ICPMS_TWDOD	MBLK	76687	8/9/2016 10:57:00 PM		
LCS-76687	1	ICPMS_TWDOD	LCS	76687	8/9/2016 11:03:00 PM		
LCSD-76687	1	ICPMS_TWDOD	LCSD	76687	8/9/2016 11:09:00 PM		
1607337-26A	1	ICPMS_TWDOD	SAMP	76687	8/9/2016 11:21:00 PM		
1607337-26A SD	5	ICPMS_TWDOD	SD	76687	8/9/2016 11:27:00 PM		DNR. Sample was misprepared at bench and sample was not detected. As per DOD QSM 5.0, criteria doesn't apply for samples with concentration <50x the LOQ, therefore no effect to data. PDS passes.
1607219-13A	1	ICPMS_TWDOD	SAMP	76687	8/9/2016 11:33:00 PM		
1607219-26A	1	ICPMS_TWDOD	SAMP	76687	8/9/2016 11:39:00 PM		
1607239-16A	1	ICPMS_TWDOD	SAMP	766a87	8/9/2016 11:45:00 PM		
1607239-32A	1	ICPMS_TWDOD	SAMP	76687	8/9/2016 11:51:00 PM		
1607256-13A	1	ICPMS_TWDOD	SAMP	76687	8/10/2016 12:03:00 AM		
1607256-26A	1	ICPMS_TWDOD	SAMP	76687	8/10/2016 12:09:00 AM		

Std ID	Std Name	Type	Exp. Date
MET-CCV-160804	ICPMS CCV 200/5000 PPB		02/02/2017
MET-H2CAL-1608	ICPMS High Cal2 2000ppb std 8		02/02/2017
MET-HCAL-16080	ICPMS High Cal 500ppb/10ppm s		02/02/2017
MET-ICV-160804	ICPMS ICV 100 ppb		02/02/2017
MET-IS-160511	INTERNAL STANDARD 1 PPM		11/09/2016
MET-L2CAL-16080	ICPMS Low Cal2 1/20ppb std 2		02/02/2017
MET-LCAL-160804	ICPMS Low Cal 10/200ppb std 3		02/02/2017
MET-LCAL10X-16	ICPMS Low Cal 10/200ppb std 4		02/02/2017
MET-LCAL5X-160	ICPMS Low Cal 10/200ppb std 5		02/02/2017
MET-LCVLSPIKE-	LCVL METALS SPIKE (100/500		11/07/2016
MET-MCAL-16080	ICPMS Mid Cal 250/5000ppb std		02/02/2017
MET-PA-160421	ICPMS PA FACTOR SOLUTION		10/20/2016
MET-PDS-160701-	10 PPM Ag+Sb PDS		01/01/2017
MET-PDS-160701-	10 PPM CUSTOM PDS SOLUTI		01/01/2017
MET-PDS-160701-	250 PPM Naturals+Al+Fe PDS		07/01/2017

DHL Analytical, Inc.

Run ID: ICP-MS3_160809B **Run No.:** 87530

1607256-27A	1	ICPMS_TWDOD	SAMP	76687	8/10/2016 12:15:00 AM		
1607265-13A	1	ICPMS_TWDOD	SAMP	76687	8/10/2016 12:21:00 AM		
1607265-26A	1	ICPMS_TWDOD	SAMP	76687	8/10/2016 12:28:00 AM		
1607337-26A PDS	1	ICPMS_TWDOD	PDS	76687	8/10/2016 12:34:00 AM		
CCV6-160809	1	ICPMS_TWDOD	CCV	R87530	8/10/2016 12:40:00 AM		
LCVL6-160809	1	ICPMS_TWDOD	LCVL	R87530	8/10/2016 12:52:00 AM		
CCB6-160809	1	ICPMS_TWDOD	CCB	R87530	8/10/2016 12:58:00 AM		
1607294-13A	1	ICPMS_TWDOD	SAMP	76687	8/10/2016 1:04:00 AM		
1607294-24A	1	ICPMS_TWDOD	SAMP	76687	8/10/2016 1:10:00 AM		
1607294-37A	1	ICPMS_TWDOD	SAMP	76687	8/10/2016 1:16:00 AM		
1607294-50A	1	ICPMS_TWDOD	SAMP	76687	8/10/2016 1:22:00 AM		
ICSA-160809	1	ICPMS_TWDOD	ICSA	R87530	8/10/2016 1:28:00 AM		
ICSAB-160809	1	ICPMS_TWDOD	ICSB	R87530	8/10/2016 1:34:00 AM		
1607294-63A	1	ICPMS_TWDOD	SAMP	76687	8/10/2016 1:52:00 AM		
1607294-76A	1	ICPMS_TWDOD	SAMP	76687	8/10/2016 2:04:00 AM		
1607314-07A	1	ICPMS_TWDOD	SAMP	76687	8/10/2016 2:10:00 AM		
1607317-13A	1	ICPMS_TWDOD	SAMP	76687	8/10/2016 2:16:00 AM		
1607317-26A	1	ICPMS_TWDOD	SAMP	76687	8/10/2016 2:22:00 AM		
1607337-13A	1	ICPMS_TWDOD	SAMP	76687	8/10/2016 2:28:00 AM		
CCV7-160809	1	ICPMS_TWDOD	CCV	R87530	8/10/2016 2:34:00 AM		
LCVL7-160809	1	ICPMS_TWDOD	LCVL	R87530	8/10/2016 2:46:00 AM		
CCB7-160809	1	ICPMS_TWDOD	CCB	R87530	8/10/2016 2:52:00 AM		

Std ID	Std Name	Type	Exp. Date
MET-CCV-160804	ICPMS CCV 200/5000 PPB		02/02/2017
MET-H2CAL-1608	ICPMS High Cal2 2000ppb std 8		02/02/2017
MET-HCAL-16080	ICPMS High Cal 500ppb/10ppm s		02/02/2017
MET-ICV-160804	ICPMS ICV 100 ppb		02/02/2017
MET-IS-160511	INTERNAL STANDARD 1 PPM		11/09/2016
MET-L2CAL-16080	ICPMS Low Cal2 1/20ppb std 2		02/02/2017
MET-LCAL-160804	ICPMS Low Cal 10/200ppb std 3		02/02/2017
MET-LCAL10X-16	ICPMS Low Cal 10/200ppb std 4		02/02/2017
MET-LCAL5X-160	ICPMS Low Cal 10/200ppb std 5		02/02/2017
MET-LCVLSPIKE-	LCVL METALS SPIKE (100/500		11/07/2016
MET-MCAL-16080	ICPMS Mid Cal 250/5000ppb std		02/02/2017
MET-PA-160421	ICPMS PA FACTOR SOLUTION		10/20/2016
MET-PDS-160701-	10 PPM Ag+Sb PDS		01/01/2017
MET-PDS-160701-	10 PPM CUSTOM PDS SOLUTI		01/01/2017
MET-PDS-160701-	250 PPM Naturals+Al+Fe PDS		07/01/2017

	Method	Type	Vial	Data File	Sample	Comment	Dil/Lvl	ISTD Conc	Action on Failure	Skip	Result
1		Keyword		CALBEG	Start of CALIB						
2	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1101		BLANK	CAL ICPMS_TW	1.000				
3	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1102		BLANK	CAL ICPMS_TW	1.000				
4	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1103		BLANK	CAL ICPMS_TW	1.000				
5	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1104		BLANK	CAL ICPMS_TW	1.000				
6	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		BLANK	CAL ICPMS_TW	1.000				
7	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalBlk	2101		BLANK STD 1	CAL ICPMS_TW	Level 1				
8	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalStd	2102		L2-160809	CAL ICPMS_TW	Level 2				
9	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalStd	2103		L-160809	CAL ICPMS_TW	Level 3				
10	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalStd	2104		10X-160809	CAL ICPMS_TW	Level 4				
11	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalStd	2105		5X-160809	CAL ICPMS_TW	Level 5				
12	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalStd	2106		2X-160809	CAL ICPMS_TW	Level 6				
13	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalStd	2107		H-160809	CAL ICPMS_TW	Level 7				
14	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalStd	2108		H2-160809	CAL ICPMS_TW	Level 8				
15	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1104		BLANK	CAL ICPMS_TW	1.000				
16	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		BLANK	CAL ICPMS_TW	1.000				
17		Keyword		CALEND	End of CALIB						
18		Keyword		ICSBEG	Start of ICS						
19	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	ICS-A	2109		ICSA-160809	ICSAICPMS_TW	1.000				
20	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	ICS-AB	2110		ICSAB-160809	ICSBICPMS_TW	1.000				
21	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1103		RINSE	CAL ICPMS_TW	1.000				
22	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1104		RINSE	CAL ICPMS_TW	1.000				
23		Keyword		ICSEND	End of ICS						
24		Keyword		SMPLBEG	Start of SMPL						
25	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	ICV	2111		ICV1-160809	ICV ICPMS_TW	1.000				

	Method	Type	Vial	Data File	Sample	Comment	Dil/Lvl	ISTD Conc	Action on Failure	Skip	Result
26	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	ICB	1104		ICB1-160809	ICB ICPMS_TW	1.000				
27	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCVL5	2112		ILCVL-160809	LCVLICPMS_TW	1.000				
28	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	PB	2201		MB-76663	MBLKICPMS_TSDOD1	5.000				
29	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCS	2202		LCS-76663	LCS ICPMS_TSDOD1	5.000				
30	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCS	2203		LCSD-76663	LCSDICPMS_TSDOD1	5.000				
31	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1101		RINSE	CCB ICPMS_TW	1.000				
32	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	AllRef	2204		1607256-28A	SAMPICPMS_TSDOD1	5.000				
33	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	DT	2205		1607256-28A SD	SD ICPMS_TSDOD1	25.00				
34	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2206		1607256-31A	SAMPICPMS_TSDOD1	5.000	Level 1			
35	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2207		1607256-32A	SAMPICPMS_TSDOD1	5.000	Level 1			
36	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2208		1607256-33A	SAMPICPMS_TSDOD1	5.000	Level 1			
37	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2209		1607256-34A	SAMPICPMS_TSDOD1	5.000				
38	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2210		1607256-35A	SAMPICPMS_TSDOD1	5.000				
39	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2211		1607256-36A	SAMPICPMS_TSDOD1	5.000				
40	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2212		1607256-37A	SAMPICPMS_TSDOD1	5.000				
41	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2301		1607256-38A	SAMPICPMS_TSDOD1	5.000				
42	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2302		1607256-39A	SAMPICPMS_TSDOD1	5.000				
43	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	PDS	2303		1607256-28A PDS	PDS ICPMS_TSDOD1	5.000				
44	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	MS_S	2304		1607256-28A MS	MS ICPMS_TSDOD1	5.000				
45	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	MS_S	2305		1607256-28A MSD	MSD ICPMS_TSDOD1	5.000				
46	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	1307		CCV1-160809	CCV ICPMS_TW	1.000				
47	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1104		CCB1-160809	CCB ICPMS_TW	1.000				
48	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	1307		CCV1-160809	CCV ICPMS_TW	1.000				

	Method	Type	Vial	Data File	Sample	Comment	Dil/Lvl	ISTD Conc	Action on Failure	Skip	Result
49	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCVL5	2512		LCVL1-160809	LCVLICPMS_TW	1.000				
50	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		CCB1-160809	CCB ICPMS_TW	1.000				
51	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2306		1607256-40A	SAMPICPMS_TSDOD1	5.000				
52	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2307		1607256-41A	SAMPICPMS_TSDOD1	5.000				
53	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2308		1607256-42A	SAMPICPMS_TSDOD1	5.000				
54	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2309		1607265-01A	SAMPICPMS_TSDOD1	50.00				
55	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2310		1607265-02A	SAMPICPMS_TSDOD1	5.000				
56	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1101		RINSE	CCB ICPMS_TW	1.000				
57	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2311		1607265-03A	SAMPICPMS_TSDOD1	5.000				
58	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2312		1607265-04A	SAMPICPMS_TSDOD1	5.000				
59	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2401		1607265-05A	SAMPICPMS_TSDOD1	5.000				
60	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2402		1607265-06A	SAMPICPMS_TSDOD1	5.000				
61	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2403		1607265-07A	SAMPICPMS_TSDOD1	5.000				
62	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	1307		CCV2-160809	CCV ICPMS_TW	1.000				
63	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1104		CCB2-160809	CCB ICPMS_TW	1.000				
64	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCVL5	2112		LCVL2-160809	LCVLICPMS_TW	1.000				
65	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		CCB2-160809	CCB ICPMS_TW	1.000				
66	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2501		1606256-18A	SAMPICPMS_TSDOD1	5.000				
67	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2502		1607256-19A	SAMPICPMS_TSDOD1	5.000				
68	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2503		1607256-20A	SAMPICPMS_TSDOD1	5.000				
69	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2504		1607256-21A	SAMPICPMS_TSDOD1	5.000				
70	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2505		1607256-22A	SAMPICPMS_TSDOD1	5.000				
71	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1101		RINSE	CCB ICPMS_TW	1.000				

	Method	Type	Vial	Data File	Sample	Comment	Dil/Lvl	ISTD Conc	Action on Failure	Skip	Result
72	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2506		1607256-23A	SAMPICPMS_TSDOD1	5.000				
73	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2507		1607256-24A	SAMPICPMS_TSDOD1	5.000				
74	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2508		1607256-25A	SAMPICPMS_TSDOD1	5.000				
75	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2509		1607256-29A	SAMPICPMS_TSDOD1	5.000				
76	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2510		1607256-30A	SAMPICPMS_TSDOD1	5.000				
77	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	1307		CCV3-160809	CCV ICPMS_TW	1.000				
78	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		CCB3-160809	CCB ICPMS_TW	1.000				
79	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCVL5	2512		LCVL3-160809	LCVLICPMS_TW	1.000				
80	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		CCB3-160809	CCB ICPMS_TW	1.000				
81	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	PB	3101		MB-76670	MBLKICPMS_TSDOD1	5.000				
82	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCS	3102		LCS-76670	LCS ICPMS_TSDOD1	5.000				
83	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCS	3103		LCSD-76670	LCSDICPMS_TSDOD1	5.000				
84	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1101		RINSE	CCB ICPMS_TW	1.000				
85	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	AllRef	3104		1607294-09A	SAMPICPMS_TSDOD1	5.000				
86	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	DT	3105		1607294-09A SD	SD ICPMS_TSDOD1	25.00				
87	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3106		1607294-04A	SAMPICPMS_TSDOD1	5.000				
88	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3107		1607294-05A	SAMPICPMS_TSDOD1	5.000				
89	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3108		1607294-06A	SAMPICPMS_TSDOD1	5.000				
90	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3109		1607294-07A	SAMPICPMS_TSDOD1	5.000				
91	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3110		1607294-08A	SAMPICPMS_TSDOD1	5.000				
92	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3111		1607294-10A	SAMPICPMS_TSDOD1	5.000				
93	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3112		1607294-11A	SAMPICPMS_TSDOD1	5.000				
94	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3201		1607294-12A	SAMPICPMS_TSDOD1	5.000				

	Method	Type	Vial	Data File	Sample	Comment	Dil/Lvl	ISTD Conc	Action on Failure	Skip	Result
95	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3202		1607294-14A	SAMPICPMS_TSDOD1	5.000				
96	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	PDS	3203		1607294-09A PDS	PDS ICPMS_TSDOD1	5.000				
97	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	MS_S	3204		1607294-09A MS	MS_ICPMS_TSDOD1	5.000				
98	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	MS_S	3205		1607294-09A MSD	MSD ICPMS_TSDOD1	5.000				
99	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	1307		CCV4-160809	CCV ICPMS_TW	1.000				
100	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1104		CCB4-160809	CCB ICPMS_TW	1.000				
101	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCVL5	2112		LCVL4-160809	LCVLICPMS_TW	1.000				
102	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		CCB4-160809	CCB ICPMS_TW	1.000				
103	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	1307		CCV4-160809	CCV ICPMS_TW	1.000				
104	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3206		1607294-15A	SAMPICPMS_TSDOD1	5.000				
105	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3207		1607294-16A	SAMPICPMS_TSDOD1	5.000				
106	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3208		1607294-17A	SAMPICPMS_TSDOD1	5.000				
107	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3209		1607294-18A	SAMPICPMS_TSDOD1	50.00				
108	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3210		1607294-19A	SAMPICPMS_TSDOD1	5.000				
109	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1101		RINSE	CCB ICPMS_TW	1.000				
110	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3211		1607294-20A	SAMPICPMS_TSDOD1	5.000				
111	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3212		1607294-21A	SAMPICPMS_TSDOD1	5.000				
112	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3301		1607294-22A	SAMPICPMS_TSDOD1	5.000				
113	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3302		1607294-23A	SAMPICPMS_TSDOD1	5.000				
114	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3303		1607294-25A	SAMPICPMS_TSDOD1	5.000				
115	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	1307		CCV5-160809	CCV ICPMS_TW	1.000				
116	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		CCB5-160809	CCB ICPMS_TW	1.000				
117	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCVL5	2512		LCVL5-160809	LCVLICPMS_TW	1.000				

	Method	Type	Vial	Data File	Sample	Comment	Dil/Lvl	ISTD Conc	Action on Failure	Skip	Result
118	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		CCB5-160809	CCB ICPMS_TW	1.000				
119	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	PB W	3401		MB-76663	MBLKICPMS_TWDOD1	1.000				
120	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCS W	3402		LCS-76663	LCS ICPMS_TWDOD1	1.000				
121	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCS W	3403		LCSD-766487	LCSDICPMS_TWDOD1	1.000				
122	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1101		RINSE	CCB ICPMS_TW	1.000				
123	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	AllRef	3404		1607337-26A	SAMPICPMS_TWDOD1	1.000				
124	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	DT	3405		1607337-26A SD	SD ICPMS_TWDOD1	5.000				
125	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	3406		1607219-13A	SAMPICPMS_TWDOD1	1.000				
126	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	3407		1607219-26A	SAMPICPMS_TWDOD1	1.000				
127	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	3408		1607239-16A	SAMPICPMS_TWDOD1	1.000				
128	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	3409		1607239-32A	SAMPICPMS_TWDOD1	1.000				
129	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1102		RINSE	CCB ICPMS_TW	1.000				
130	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	3410		1607256-13A	SAMPICPMS_TWDOD1	1.000				
131	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	3411		1607256-26A	SAMPICPMS_TWDOD1	1.000				
132	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	3412		1607256-27A	SAMPICPMS_TWDOD1	1.000				
133	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	3501		1607265-13A	SAMPICPMS_TWDOD1	1.000				
134	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	3502		1607265-26A	SAMPICPMS_TWDOD1	1.000				
135	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	PDS	3503		1607337-26A PDS	PDS ICPMS_TWDOD1	1.000				
136	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	1307		CCV6-160809	CCV ICPMS_TW	1.000				
137	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1104		CCB6-160809	CCB ICPMS_TW	1.000				
138	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCVL5	2112		LCVL6-160809	LCVLICPMS_TW	1.000				
139	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		CCB6-160809	CCB ICPMS_TW	1.000				
140	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	3504		1607294-13A	SAMPICPMS_TWDOD1	1.000				

	Method	Type	Vial	Data File	Sample	Comment	Dil/Lvl	ISTD Conc	Action on Failure	Skip	Result
141	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	3505		1607294-24A	SAMPICPMS_TWDOD1	1.000				
142	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	3506		1607294-37A	SAMPICPMS_TWDOD1	1.000				
143	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	3507		1607294-50A	SAMPICPMS_TWDOD1	1.000				
144	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	3508		1607294-63A	SAMPICPMS_TWDOD1	1.000				
145	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1101		RINSE	CCB ICPMS_TW	1.000				
146	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	3509		1607294-76A	SAMPICPMS_TWDOD1	1.000				
147	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	3510		1607314-07A	SAMPICPMS_TWDOD1	1.000				
148	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	3511		1607317-13A	SAMPICPMS_TWDOD1	1.000				
149	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	3512		1607317-26A	SAMPICPMS_TWDOD1	1.000				
150	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	3312		1607337-13A	SAMPICPMS_TWDOD1	1.000				
151	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	1307		CCV7-160809	CCV ICPMS_TW	1.000				
152	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		CCB7-160809	CCB ICPMS_TW	1.000				
153	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCVL5	2512		LCVL7-160809	LCVLICPMS_TW	1.000				
154	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		CCB7-160809	CCB ICPMS_TW	1.000				
155	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1101		RINSE	CCB ICPMS_TW	1.000				
156	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1102		RINSE	CCB ICPMS_TW	1.000				
157	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1103		RINSE	CCB ICPMS_TW	1.000				
158	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1104		RINSE	CCB ICPMS_TW	1.000				
159	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		RINSE	CCB ICPMS_TW	1.000				
160	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1101		RINSE	CCB ICPMS_TW	1.000				
161	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1102		RINSE	CCB ICPMS_TW	1.000				
162	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1103		RINSE	CCB ICPMS_TW	1.000				
163		Keyword		StandBy							
164		Keyword		SMPLEND	End of SMPL						

	Method	Type	Vial	Data File	Sample	Comment	Dil/Lvl	ISTD Conc	Action on Failure	Skip	Result
165		Keyword		End	End of Sequence						
166		Keyword		CCVBEG	Start of CCV						
167		Keyword		CCVEND	End of CCV						
168		Keyword		BLKBEG	Start of BLANK						
169		Keyword		BLKEND	End of BLANK						
170		Keyword		ERRBEG	Start of ERRTERM						
171		Keyword		ERREND	End of ERRTERM						

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **8/5/2016 10:30:04 AM**
Digestion:
Prep End Date:

Prep Batch **76687** Prep Code: **3005ADOD** Technician: **Cassie Van Dyke**

Prep Factor Units: **mL/mL**

Equipment List

- Hot Block #6
- Thermometer #71
- Pipette #P-09-Spikes
- Pipette #P-01 Samples

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607219-13A	Equip Blank		50	50	1.000	1 of 1	
wait til more project EQ BLANKS arrive to start this batch.							
1607219-26A	Equip Blank		50	50	1.000	1 of 1	
1607239-16A	Equip Blank		50	50	1.000	1 of 1	
1607239-32A	Equip Blank		50	50	1.000	1 of 1	
1607256-13A	Equip Blank		50	50	1.000	1 of 1	
1607256-26A	Equip Blank		50	50	1.000	1 of 1	
1607256-27A	Equip Blank		50	50	1.000	1 of 1	
1607265-13A	Equip Blank		50	50	1.000	1 of 1	
1607265-26A	Equip Blank		50	50	1.000	1 of 1	
1607294-13A	Equip Blank		50	50	1.000	1 of 1	
1607294-24A	Equip Blank		50	50	1.000	1 of 1	
1607294-37A	Equip Blank		50	50	1.000	1 of 1	
1607294-50A	Equip Blank		50	50	1.000	1 of 1	
1607294-63A	Equip Blank		50	50	1.000	1 of 1	
1607294-76A	Equip Blank		50	50	1.000	1 of 1	
1607314-07A	Equip Blank		50	50	1.000	1 of 1	
1607317-13A	Equip Blank		50	50	1.000	1 of 1	
1607317-26A	Equip Blank		50	50	1.000	1 of 1	
1607337-13A	Aqueous		50	50	1.000	1 of 1	
1607337-26A	Aqueous		50	50	1.000	1 of 1	
LCS-76687	Aqueous		50	50	1.000	of	
LCSD-76687	Aqueous		50	50	1.000	of	
MB-76687	Aqueous		50	50	1.000	of	

Number	Reagent Name	Amt	Units	Exp. Da
10056	Digestion Vessels	1	ml	02/10/2026
10399	Nitric Acid (Trace Metal Grade)	1	ml	05/24/2026
10400	Hydrochloric Acid (trace metal grade)	1	ml	05/24/2026

Spk ID	Spike Name	Samp Type	Amt (mL or g)	Exp. Date
MET-150914-10	AL PRIMARY STD 1000 PPM	LCS/MS/MSD	0.25	10/01/2016
MET-150914-9	FE PRIMARY STD 1000 PPM	LCS/MS/MSD	0.25	10/01/2016
MET-SPIKE-160701-3	2500 PPM NATURALS SPIKE	LCS/MS/MSD	0.1	09/29/2016
MET-SPIKE-160715-4B	50 PPM Sb+Ag CAL	LCS/MS/MSD	0.2	10/13/2016
MET-SPIKE-160715-5B	50 PPM Custom+Sn,Ti,B,Mo,Sr CAL	LCS/MS/MSD	0.2	10/13/2016

~~10:53~~ CHO 8-5-16
12:32 - 18:16

REVIEWED BY
By Janice Whitt at 2:24:16 PM, 8/10/2016

8/5/18

MECHANICAL VOLUMETRIC PIPETTE VOLUME DAILY CHECK - DOD QSM 5.0

ANALYST:	SP	**BALANCE #:**	26	
TEST DATE:	08/05/2016	**Water is at Room Temperatue (70-73°F) / (21-23°C)**		
PIPETTER LAB ID:	P-01, P-09	**WATER TEMP (°C):**	**21-23°C**	
TEST VOLUME:	See Below	**WATER DENSITY:**	**0.998**	**(0.9980-0.9976)**

REFERENCE:	DoD QSM 5.0
# of REPLICATES:	3
LABWARE TYPE:	MECHANICAL VOLUMETRIC PIPETTE
FREQUENCY:	DAILY BEFORE USE
MEAN CRITERIA:	± 2% OF NOMINAL VOLUME (VOLUME OF USE/TEST VOLUME)
RSD CRITERIA:	< 1% OF NOMINAL VOLUME (BASED ON MINIMUM OF 3 REPLICATE MEASUREMENTS)

1) RECORD ROOM AND WATER TEMPERATURE	**% TEST VOL = Volume of H2O at °C/Test Volume * 100**
2) TARE VESSEL ON BALANCE. ADD TEST VOLUME.	**%RSD = STDEV (Mean Volume)/AVERAGE (Mean Volume) *100**
3) WEIGH 3 REPLICATES AT THE TEST VOLUME.	
4) DETERMINE TOTAL WT.	
5) CALCULATE VOLUME OF H2O AT °C (in mL)	**VOLUME OF H2O AT °C = TOTAL WT / WATER DENSITY**

					BIAS	PRECISION
PIPETTE ID: P-01	**TEST VOLUME (mL)**	**TOTAL WT (g)**	**Volume of H_2O at °C**	**% TEST VOL (98-102%)**	**MEAN CRITERIA (± 2%)**	**% RSD Calculated**
1	**5.00**	5.0031	5.0131	**100.26**	**PASS**	**RSD MUST BE ≤ 1% OF TEST VOLUME VALUE**
2		4.9858	4.9958	**99.92**		
3		4.9726	4.9826	**99.65**		
AVERAGE (MEAN)		**4.987**	**4.997**	**99.94**		**0.307**
						PASS

PIPETTE ID: P-09	**TEST VOLUME (mL)**	**TOTAL WT (g)**	**Volume of H_2O at °C**	**% TEST VOL (98-102%)**	**MEAN CRITERIA (± 2%)**	**% RSD Calculated**
1	**0.20**	0.2014	0.2018	**100.90**	**PASS**	**RSD MUST BE ≤ 1% OF TEST VOLUME VALUE**
2		0.2021	0.2025	**101.25**		
3		0.2021	0.2025	**101.25**		
AVERAGE (MEAN)		**0.202**	**0.202**	**101.14**		**0.200**
						PASS

PIPETTE ID:	**TEST VOLUME (mL)**	**TOTAL WT (g)**	**Volume of H_2O at °C**	**% TEST VOL (98-102%)**	**MEAN CRITERIA (± 2%)**	**% RSD Calculated**
1						**RSD MUST BE ≤ 1% OF TEST VOLUME VALUE**
2						
3						
AVERAGE (MEAN)						

8/5/16
Analyst / Date

REVIEWED BY
By Janice Whitt at 2:24:24 PM, 8/10/2016
Review and Approved / Date

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **8/5/2016 10:30:04 AM**
Digestion: **Start: 8/5/2016 12:32:00 PM / Stop: 8/5/2016 6:16:00 PM**
Prep End Date: **8/5/2016 6:34:00 PM**

Prep Batch **76687** Prep Code: **3005ADOD** Technician: **Cassie Van Dyke**

Prep Factor Units: **mL/mL**

Equipment List

Hot Block #6
Thermometer #71
Pipette #P-09-Spikes
Pipette #P-01 Samples

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607219-13A	Equip Blank		50	50	1.000	1 of 1	
	wait til more project EQ BLANKS arrive to start this batch.						
1607219-26A	Equip Blank		50	50	1.000	1 of 1	
1607239-16A	Equip Blank		50	50	1.000	1 of 1	
1607239-32A	Equip Blank		50	50	1.000	1 of 1	
1607256-13A	Equip Blank		50	50	1.000	1 of 1	
1607256-26A	Equip Blank		50	50	1.000	1 of 1	
1607256-27A	Equip Blank		50	50	1.000	1 of 1	
1607265-13A	Equip Blank		50	50	1.000	1 of 1	
1607265-26A	Equip Blank		50	50	1.000	1 of 1	
1607294-13A	Equip Blank		50	50	1.000	1 of 1	
1607294-24A	Equip Blank		50	50	1.000	1 of 1	
1607294-37A	Equip Blank		50	50	1.000	1 of 1	
1607294-50A	Equip Blank		50	50	1.000	1 of 1	
1607294-63A	Equip Blank		50	50	1.000	1 of 1	
1607294-76A	Equip Blank		50	50	1.000	1 of 1	
1607314-07A	Equip Blank		50	50	1.000	1 of 1	
1607317-13A	Equip Blank		50	50	1.000	1 of 1	
1607317-26A	Equip Blank		50	50	1.000	1 of 1	
1607337-13A	Aqueous		50	50	1.000	1 of 1	
1607337-26A	Aqueous		50	50	1.000	1 of 1	
1607337-26A PDS	Aqueous		50	50	1.000	of	
1607337-26A SD	Aqueous		50	50	1.000	of	
LCS-76687	Aqueous		50	50	1.000	of	
LCSD-76687	Aqueous		50	50	1.000	of	
MB-76687	Aqueous		50	50	1.000	of	

Number	Reagent Name	Amt	Units	Exp. Da
10056	Digestion Vessels	1	ml	02/10/2026
10399	Nitric Acid (Trace Metal Grade)	1	ml	05/24/2026
10400	Hydrochloric Acid (trace metal grade)	1	ml	05/24/2026

Spk ID	Spike Name	SampType	Amt (mL or g)	Exp. Date
MET-150914-10	AL PRIMARY STD 1000 PPM	LCS/MS/MSD	0.25	10/01/2016
MET-150914-9	FE PRIMARY STD 1000 PPM	LCS/MS/MSD	0.25	10/01/2016
MET-SPIKE-160701-3	2500 PPM NATURALS SPIKE	LCS/MS/MSD	0.1	09/29/2016
MET-SPIKE-160715-4B	50 PPM Sb+Ag CAL	LCS/MS/MSD	0.2	10/13/2016
MET-SPIKE-160715-5B	50 PPM Custom+Sn,Ti,B,Mo,Sr CAL	LCS/MS/MSD	0.2	10/13/2016

REVIEWED BY
By Janice Whitt at 2:24:21 PM, 8/10/2016

MECHANICAL VOLUMETRIC PIPETTE VOLUME DAILY CHECK - DOD QSM 5.0

ANALYST:	RO	**BALANCE #:**	30	
TEST DATE:	08/09/2016	**Water is at Room Temperatue (70-73°F) / (21-23°C)**		
PIPETTER LAB ID:	See Below	**WATER TEMP (°C):**	**21-23°C**	
TEST VOLUME:	See Below	**WATER DENSITY:**	**0.998**	**(0.9980-0.9976)**

REFERENCE:	DoD QSM 5.0
# of REPLICATES:	3
LABWARE TYPE:	MECHANICAL VOLUMETRIC PIPETTE
FREQUENCY:	DAILY BEFORE USE
MEAN CRITERIA:	± 2% OF NOMINAL VOLUME (VOLUME OF USE/TEST VOLUME)
RSD CRITERIA:	< 1% OF NOMINAL VOLUME (BASED ON MINIMUM OF 3 REPLICATE MEASUREMENTS)

1) RECORD ROOM AND WATER TEMPERATURE
2) TARE VESSEL ON BALANCE. ADD TEST VOLUME.
3) WEIGH 3 REPLICATES AT THE TEST VOLUME.
4) DETERMINE TOTAL WT.
5) CALCULATE VOLUME OF H2O AT °C (in mL)

% TEST VOL = Volume of H2O at °C/Test Volume * 100

%RSD = STDEV (Mean Volume)/AVERAGE (Mean Volume) *100

VOLUME OF H2O AT °C = TOTAL WT * WATER DENSITY

					BIAS	PRECISION
PIPETTE ID: P-31	**TEST VOLUME (mL)**	**TOTAL WT (g)**	**Volume of H_2O at °C**	**% TEST VOL (98-102%)**	**MEAN CRITERIA (± 2%)**	**% RSD Calculated**
1	4.00	3.9957	3.9877	99.69	PASS	RSD MUST BE ≤ 1% OF TEST VOLUME VALUE
2		4.0006	3.9926	99.81		
3		4.0002	3.9922	99.80		
AVERAGE (MEAN)		**3.999**	**3.991**	**99.77**		**0.068**
						PASS

PIPETTE ID: P-21	**TEST VOLUME (mL)**	**TOTAL WT (g)**	**Volume of H_2O at °C**	**% TEST VOL (98-102%)**	**MEAN CRITERIA (± 2%)**	**% RSD Calculated**
1	1.00	0.9962	0.9942	99.42	PASS	RSD MUST BE ≤ 1% OF TEST VOLUME VALUE
2		0.9969	0.9949	99.49		
3		0.9970	0.9950	99.50		
AVERAGE (MEAN)		**0.997**	**0.995**	**99.47**		**0.044**
						PASS

PIPETTE ID: P-39	**TEST VOLUME (mL)**	**TOTAL WT (g)**	**Volume of H_2O at °C**	**% TEST VOL (98-102%)**	**MEAN CRITERIA (± 2%)**	**% RSD Calculated**
1	0.500	0.5031	0.5021	100.42	PASS	RSD MUST BE ≤ 1% OF TEST VOLUME VALUE
2		0.5007	0.4997	99.94		
3		0.5000	0.4990	99.80		
AVERAGE (MEAN)		**0.501**	**0.500**	**100.05**		**0.324**
						PASS

8/9/16

Analyst / Date

REVIEWED BY
By Janice Whitt at 2:24:29 PM, 8/10/2016

Review and Approved / Date

Calibration Summary Report

Instrument: ICPMS3
Current Method: C:\ICPCHEM\1\METHODS\DHL_3Fe.M
Calibration: C:\ICPCHEM\1\CALIB\DHL_3FE.c
Last Update: Aug 09 2016 01:04 pm
Cal Type: Y=aX+[blank]

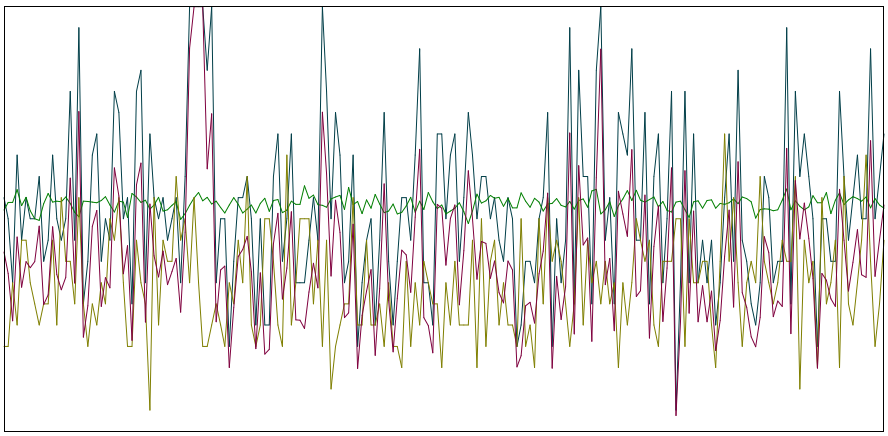
Standard	Date Acquired	File
BLANK STD 1	Aug 9 2016 12:19 pm	c:\icpchem\1\data\16h09l01.b\006calb.d\
L2-160809	Aug 9 2016 12:25 pm	c:\icpchem\1\data\16h09l01.b\007cals.d\
L-160809	Aug 9 2016 12:31 pm	c:\icpchem\1\data\16h09l01.b\008cals.d\
10X-160809	Aug 9 2016 12:37 pm	c:\icpchem\1\data\16h09l01.b\009cals.d\
5X-160809	Aug 9 2016 12:43 pm	c:\icpchem\1\data\16h09l01.b\010cals.d\
2X-160809	Aug 9 2016 12:49 pm	c:\icpchem\1\data\16h09l01.b\011cals.d\

Element Name	Corr Coef	Coef A	Coef B	Lvl 2	Lvl 6	Lvl 7	L7 %R	Lvl 8	L8 %R
Li	1.0000	0.268	0.01985	0.99	249	499		2000	
Be	1.0000	0.08936	0.002333	0.99	249	500	100%	--------	######
B	1.0000	0.07365	0.1211	0.95	253	515	103%	1,996	100%
Na	0.9998	0.3335	28.74	19.01	5,319	10,360	104%	24,790	99%
Mg	0.9997	0.1475	0.5455	20.73	5,030	10,510	105%	24,790	99%
Al	1.0000	0.03438	0.4037	18.43	5,019	9,994	100%	--------	######
K	0.9999	0.07325	5.923	20.58	4,926	9,747	97%	25,120	100%
Ca	1.0000	0.008733	0.4669	16.00	5,206	10,090	101%	24,920	100%
Ti	1.0000	0.03017	0.002252	1.06	246	490	98%	2,003	100%
V	1.0000	1.245	0.2631	0.98	248	493	99%	2,002	100%
Cr	1.0000	1.669	0.2947	1.03	253	502	100%	1,999	100%
Mn	1.0000	0.6497	0.07648	1.05	248	488	98%	2,003	100%
Fe	1.0000	2.273	16.06	21.37	4,997	9,989	100%	--------	######
Co	0.9999	5.267	0.1233	1.02	258	530	106%	1,991	100%
Ni	1.0000	1.567	0.1314	1.05	254	500	100%	1,999	100%
Cu	0.9999	4.208	0.5701	1.10	261	525	105%	1,992	100%
Zn	0.9999	0.4055	0.1696	1.03	265	519	104%	1,993	100%
As	1.0000	0.2296	0.1832	1.12	254	505	101%	1,998	100%
Se	1.0000	0.01281	0.009769	1.02	257	508	102%	1,997	100%
Sr	1.0000	0.338	0.06304	0.95	249	488	98%	2,003	100%
Mo	0.9997	0.06146	0.00307	0.97	241	506	101%	--------	######
Ag	0.9999	0.1534	0.002437	1.02	255	498	100%	--------	######
Cd	1.0000	0.0328	0.001133	0.95	248	492	98%	2,002	100%
Sn	1.0000	0.08901	0.008757	0.98	247	507	101%	1,999	100%
Sb	0.9999	0.1054	0.002497	1.00	245	503	101%	--------	######
Ba	1.0000	0.04162	0.002829	0.95	242	486	97%	2,005	100%
Tl	1.0000	0.3276	0.008287	0.94	254	504	101%	1,999	100%
Pb	1.0000	0.4441	0.02947	0.95	251	509	102%	1,998	100%

REVIEWED BY
By Janice Whitt at 2:24:38 PM, 8/10/2016

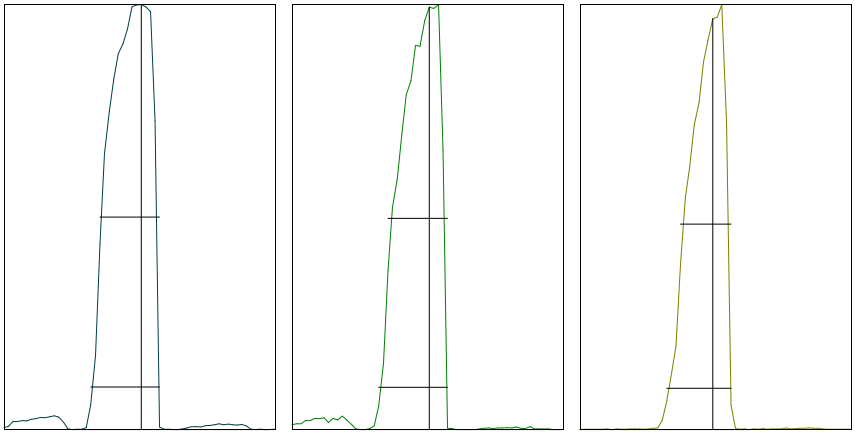
Tune Report

Tune File : He.U
Comment :



Integration Time:	0.1000 sec	
Sampling Period:	0.3100 sec	
n:	200	
Oxide:	156/140	0.306%
Doubly Charged:	70/140	2.638%

m/z	Range	Count	Mean	RSD%	Background
51	20	14.0	10.9	46.06	1.60
59	5,000	2628.0	2678.1	2.98	1.10
75	20	9.0	7.0	35.60	1.00
51/59	1	0.533%	0.409%	45.59	



m/z:	59	89	205
Height:	2,706	1,269	4,406
Axis:	59.05	89.05	205.00
W-50%:	0.65	0.65	0.55
W-10%:	0.7500	0.7500	0.700

Integration Time:	0.1000 sec
Acquisition Time:	22.5600 sec

Y axis : Linear

Generated : Aug 09, 2016 11:04:34
Printed : Aug 09, 2016 11:04:36

Tune Report

Tune File : He.U
Comment :

Tuning Parameters

===Plasma Condition===				===Ion Lenses===				===Q-Pole Parameters===			
RF Power	:	1600	W	Extract 1	:	0	V	AMU Gain	:	124	
RF Matching	:	1.6	V	Extract 2	:	-150	V	AMU Offset	:	120	
Smpl Depth	:	9	mm	Omega Bias-ce	:	-20	V	Axis Gain	:	0.9993	
Torch-H	:	0	mm	Omega Lens-ce	:	0	V	Axis Offset	:	-0.03	
Torch-V	:	0.8	mm	Cell Entrance	:	-40	V	QP Bias	:	-14	V
Carrier Gas	:	1.2	L/min	QP Focus	:	-10	V				
Makeup Gas	:	0	L/min	Cell Exit	:	-40	V	===Detector Parameters===			
Optional Gas	:	---	%					Discriminator	:	8	mV
Nebulizer Pump	:	0.1	rps	===Octopole Parameters===				Analog HV	:	1750	V
Sample Pump	:	---	rps	OctP RF	:	170	V	Pulse HV	:	1520	V
S/C Temp	:	2	degC	OctP Bias	:	-16	V				

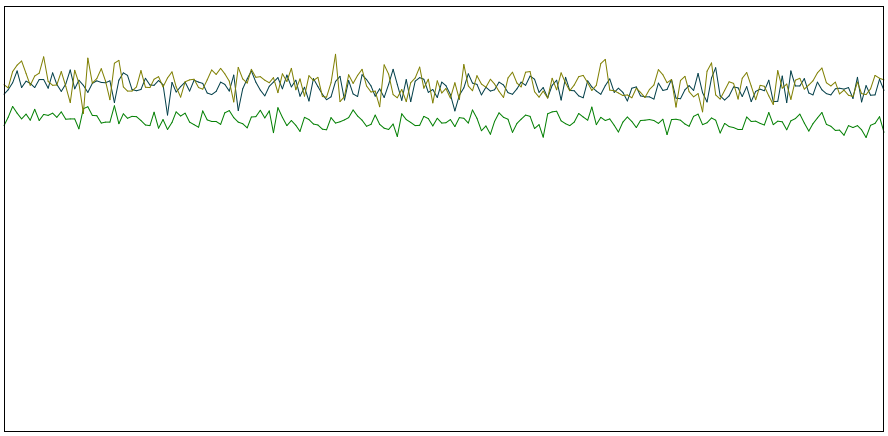
===Reaction Cell===

Reaction Mode	:	ON									
H2 Gas	:	0	mL/min	He Gas	:	4.8	mL/min	Optional Gas	:	---	%

Generated : Aug 09, 2016 11:04:34
Printed : Aug 09, 2016 11:04:38

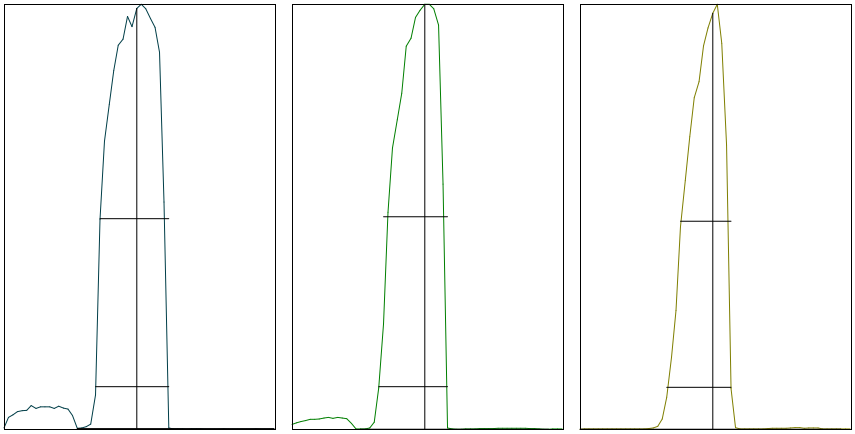
Tune Report

Tune File : nogas.u
Comment :



Integration Time:	0.1000 sec	
Sampling Period:	0.8200 sec	
n:	200	
Oxide:	156/140	1.036%
Doubly Charged:	70/140	3.195%

m/z	Range	Count	Mean	RSD%	Background
7	10,000	8026.0	8085.8	2.44	4.20
89	20,000	14074.0	14604.4	2.06	7.20
205	10,000	8272.0	8182.5	3.16	16.80
156/140	2	0.948%	1.060%	9.87	
70/140	5	3.253%	3.102%	11.05	
63	20,000	10979.0	11198.9	2.42	5.30
23	100,000	69620.0	61786.5	11.40	4.40



m/z:	7	89	205
Height:	8,017	14,600	8,176
Axis:	7.00	89.00	205.00
W-50%:	0.75	0.70	0.55
W-10%:	0.800	0.7500	0.700

Integration Time:	0.1000 sec
Acquisition Time:	22.7600 sec

Y axis : Linear

Generated : Aug 09, 2016 10:45:01
Printed : Aug 09, 2016 10:45:03

Tune Report

Tune File : nogas.u
Comment :

Tuning Parameters

===Plasma Condition===				===Ion Lenses===				===Q-Pole Parameters===			
RF Power	:	1600	W	Extract 1	:	0	V	AMU Gain	:	124	
RF Matching	:	1.6	V	Extract 2	:	-150	V	AMU Offset	:	120	
Smpl Depth	:	9	mm	Omega Bias-ce	:	-22	V	Axis Gain	:	0.9993	
Torch-H	:	0	mm	Omega Lens-ce	:	-1.4	V	Axis Offset	:	-0.03	
Torch-V	:	0.8	mm	Cell Entrance	:	-26	V	QP Bias	:	-3	V
Carrier Gas	:	1.2	L/min	QP Focus	:	0	V				
Makeup Gas	:	0	L/min	Cell Exit	:	-40	V	===Detector Parameters===			
Optional Gas	:	---	%					Discriminator	:	8	mV
Nebulizer Pump	:	0.1	rps	===Octopole Parameters===				Analog HV	:	1750	V
Sample Pump	:	---	rps	OctP RF	:	170	V	Pulse HV	:	1520	V
S/C Temp	:	2	degC	OctP Bias	:	-6	V				

===Reaction Cell===

Reaction Mode	:	OFF									
H2 Gas	:	0	mL/min	He Gas	:	0	mL/min	Optional Gas	:	---	%

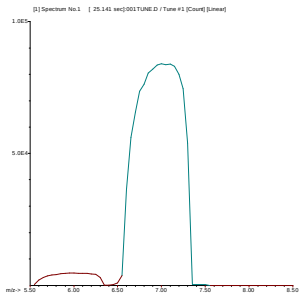
Generated : Aug 09, 2016 10:45:01
Printed : Aug 09, 2016 10:45:05

6020 QC Tune Report

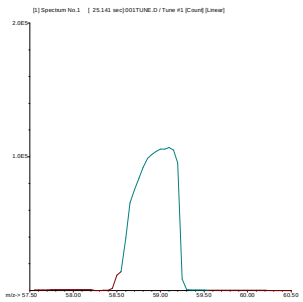
Data File: C:\ICPCHEM\1\DATA\16H09l00.B\001TUNE.D
Date Acquired: Aug 9 2016 11:24 am
Acq. Method: TN6020.M
Operator: KL
Sample Name: TUNE CHECK
Misc Info:
Vial Number: 1301
Current Method: C:\ICPCHEM\1\METHODS\TN6020.M

RSD (%)

Element	Actual	Required	Flag
7 Li	2.25	5.00	
59 Co	2.48	5.00	
115 In	2.60	5.00	
205 Tl	2.47	5.00	

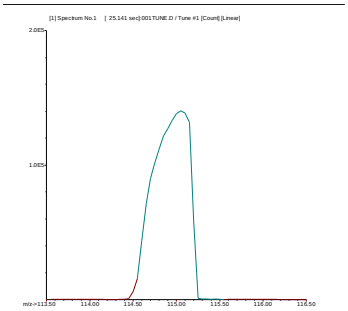


7 Li
Mass Calib.
Actual: 7.05
Required: 6.90 - 7.10
Flag:
Peak Width
Actual: 0.70
Required: 0.90
Flag:



59 Co
Mass Calib.
Actual: 59.05
Required: 58.90 - 59.10
Flag:
Peak Width
Actual: 0.60
Required: 0.90
Flag:

REVIEWED BY
By Janice Whitt at 2:24:52 PM, 8/10/2016



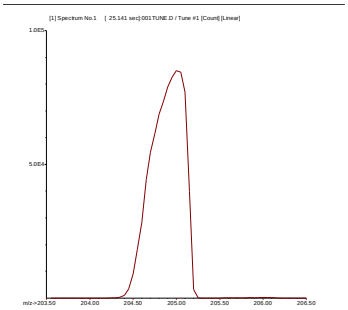
115 In

Mass Calib.

Actual:	115.05	
Required:	114.90 -	115.10
Flag:		

Peak Width

Actual:	0.60
Required:	0.90
Flag:	



205 Tl

Mass Calib.

Actual:	205.00	
Required:	204.90 -	205.10
Flag:		

Peak Width

Actual:	0.60
Required:	0.90
Flag:	

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By Janice Whitt at 2:24:54 PM, 8/10/2016

P/A Factor Tuning Report

Acquired:Aug 9 2016 11:20 am

Mass[amu]	Element	P/A Factor
6	Li	0.063716
23	Na	0.078069
24	Mg	0.081357
27	Al	0.083901
39	K	0.084057
44	Ca	Sensitivity too low
45	Sc	0.085164
47	Ti	Sensitivity too low
51	V	0.087056
52	Cr	0.089224
55	Mn	0.090623
59	Co	0.093388
60	Ni	0.094882
63	Cu	0.096643
66	Zn	0.096211
72	Ge	0.095488
75	As	0.094779
78	Se	Sensitivity too low
88	Sr	0.095797
95	Mo	0.094955
106	(Cd)	0.099887
107	Ag	Sensitivity too low
108	(Cd)	0.100044
111	Cd	0.100780
115	In	0.100761
118	Sn	0.100418
121	Sb	0.100203
137	Ba	Sensitivity too low
205	Tl	0.107503
206	(Pb)	0.107327
207	(Pb)	0.107559
208	Pb	0.107816
209	Bi	0.107471
238		0.107352

===Detector Parameters===
  Discriminator: 8.0 mV
      Analog HV: 1750 V
       Pulse HV: 1520 V

REVIEWED BY
By Janice Whitt at 2:25:00 PM, 8/10/2016

Calibration Blank QC Report

Acq. Method: DHL_3Fe.M Sample Name: BLANK STD 1
Operator: KL Instrument: ICPMS3
Last Cal. Update: Aug 09 2016 12:23 pm
Date Acquired: Aug 9 2016 12:19 pm

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)
6	Li	2	---	76.78	P	19.44	25.32
7	Li	2	45	635.60	P	13.88	2.18
9	Be	2	45	74.45	P	30.06	40.38
11	B	2	45	3880.74	P	124.70	3.21
23	Na	1	45	22714.67	P	247.20	1.09
24	Mg	1	45	431.14	P	27.15	6.30
27	Al	1	45	319.12	P	13.35	4.18
39	K	1	45	4681.08	P	182.30	3.89
44	Ca	2	45	14942.25	P	783.20	5.24
45	Sc	1	---	158070.20	P	400.30	0.25
45	Sc	2	---	6406945.00	A	148100.00	2.31
47	Ti	1	45	1.78	P	1.54	86.62
51	V	1	45	208.01	P	24.44	11.75
51	V	2	---		P		
52	Cr	1	45	232.89	P	13.88	5.96
55	Mn	1	45	60.45	P	5.05	8.35
56	Fe	1	72	7118.21	P	361.20	5.07
59	Co	1	72	54.67	P	2.31	4.22
60	Ni	1	72	58.22	P	5.55	9.53
60	Ni	2	---		P		
63	Cu	1	72	252.45	P	45.26	17.93
63	Cu	2	---		P		
66	Zn	1	72	75.11	P	8.15	10.85
66	Zn	2	---		P		
72	Ge	1	---	88651.82	P	776.40	0.88
72	Ge	2	---		A		
75	As	1	72	81.19	P	4.56	5.62
78	Se	1	72	4.33	P	0.73	16.81
88	Sr	2	###	2327.00	P	180.20	7.74
95	Mo	2	###	113.34	P	15.28	13.48
107	Ag	2	###	90.00	P	6.67	7.41
111	Cd	2	###	41.74	P	22.60	54.14
115	In	2	---	7384352.00	A	47310.00	0.64
118	Sn	2	###	323.35	P	16.67	5.16
121	Sb	2	###	92.23	P	7.70	8.35
137	Ba	2	###	104.45	P	22.20	21.25
205	Tl	2	###	215.57	P	21.17	9.82
208	Pb	2	###	766.71	P	129.90	16.94
209	Bi	2	---	5202967.00	A	16760.00	0.32

Calibration Standard QC Report

Acq. Method: DHL_3Fe.M Sample Name: L2-160809
Operator: KL Instrument: ICPMS3
Date Acquired: Aug 9 2016 12:25 pm
Last Cal. Update: Aug 09 2016 12:23 pm

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)	Flag
6	Li	2	---	-276.34	P	37.83	13.69	ISFail
7	Li	2	45	9129.18	P	280.10	3.07	
9	Be	2	45	2910.46	P	77.69	2.67	
11	B	2	45	6155.09	P	170.80	2.77	
23	Na	1	45	28183.59	P	322.20	1.14	
24	Mg	1	45	2894.90	P	138.50	4.78	
27	Al	1	45	833.38	P	29.25	3.51	
39	K	1	45	5969.45	P	193.70	3.24	
44	Ca	2	45	19511.07	P	2212.00	11.34	
45	Sc	1	---	160684.70	P	2314.00	1.44	
45	Sc	2	---	6429131.00	A	68010.00	1.06	
47	Ti	1	45	27.56	P	1.54	5.59	
51	V	1	45	1194.74	P	39.62	3.32	
51	V	2	---		P			
52	Cr	1	45	1623.24	P	14.26	0.88	
55	Mn	1	45	608.03	P	25.44	4.18	
56	Fe	1	72	28900.35	P	2962.00	10.25	
59	Co	1	72	2465.62	P	87.97	3.57	
60	Ni	1	72	796.93	P	55.31	6.94	
60	Ni	2	---		P			
63	Cu	1	72	2316.25	P	46.28	2.00	
63	Cu	2	---		P			
66	Zn	1	72	261.79	P	17.71	6.77	
66	Zn	2	---		P			
72	Ge	1	---	89405.56	P	917.80	1.03	
72	Ge	2	---		A			
75	As	1	72	197.11	P	4.29	2.18	
78	Se	1	72	10.22	P	0.51	4.98	
88	Sr	2	115	14278.91	P	588.80	4.12	
95	Mo	2	115	2323.65	P	64.30	2.77	
107	Ag	2	115	5893.90	P	231.20	3.92	
111	Cd	2	115	1197.38	P	58.34	4.87	
115	In	2	---	7443953.00	A	81490.00	1.09	
118	Sn	2	115	3580.69	P	47.04	1.31	
121	Sb	2	115	4014.18	P	113.60	2.83	
137	Ba	2	115	1577.95	P	66.78	4.23	
205	Tl	2	209	8330.07	P	211.40	2.54	
208	Pb	2	209	11870.80	P	191.10	1.61	
209	Bi	2	---	5250363.00	A	48340.00	0.92	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-276.34	13.69	76.78	-359.9	70 - 120	ISFail
45	Sc	1	160684.72	1.44	158070.19	101.7	70 - 120	
45	Sc	2	6429130.50	1.06	6406944.50	100.3	70 - 120	
72	Ge	1	89405.56	1.03	88651.82	100.9	70 - 120	
115	In	2	7443953.00	1.09	7384352.50	100.8	70 - 120	
209	Bi	2	5250363.50	0.92	5202967.00	100.9	70 - 120	

Calibration Standard QC Report

Acq. Method: DHL_3Fe.M Sample Name: L-160809
Operator: KL Instrument: ICPMS3
Date Acquired: Aug 9 2016 12:31 pm
Last Cal. Update: Aug 09 2016 12:29 pm

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)	Flag
6	Li	2	---	-3881.67	P	60.33	1.55	ISFail
7	Li	2	45	86910.47	P	940.50	1.08	Fail
9	Be	2	45	29447.30	P	565.20	1.92	Fail
11	B	2	45	27210.25	P	574.80	2.11	Fail
23	Na	1	45	78668.42	P	825.80	1.05	Fail
24	Mg	1	45	25039.14	P	435.10	1.74	Fail
27	Al	1	45	5952.62	P	89.59	1.51	Fail
39	K	1	45	16334.60	P	268.70	1.65	Fail
44	Ca	2	45	70195.96	P	3159.00	4.50	Fail
45	Sc	1	---	161571.00	P	1929.00	1.19	
45	Sc	2	---	6453811.00	A	142600.00	2.21	
47	Ti	1	45	260.01	P	35.50	13.65	Fail
51	V	1	45	10266.17	P	219.20	2.14	Fail
51	V	2	---		P			
52	Cr	1	45	14166.06	P	190.20	1.34	Fail
55	Mn	1	45	5238.97	P	39.95	0.76	Fail
56	Fe	1	72	213754.41	P	1903.00	0.89	Fail
59	Co	1	72	24702.73	P	305.40	1.24	
60	Ni	1	72	7330.29	P	214.90	2.93	Fail
60	Ni	2	---		P			
63	Cu	1	72	20624.14	P	340.20	1.65	Fail
63	Cu	2	---		P			
66	Zn	1	72	2102.88	P	42.78	2.03	Fail
66	Zn	2	---		P			
72	Ge	1	---	90222.60	P	954.20	1.06	
72	Ge	2	---		A			
75	As	1	72	1138.61	P	9.52	0.84	Fail
78	Se	1	72	66.48	P	5.04	7.58	Fail
88	Sr	2	115	124450.40	P	2670.00	2.15	Fail
95	Mo	2	115	22071.00	P	419.80	1.90	Fail
107	Ag	2	115	57970.12	P	1503.00	2.59	Fail
111	Cd	2	115	12490.16	P	478.50	3.83	Fail
115	In	2	---	7406828.00	A	96950.00	1.31	
118	Sn	2	115	32855.11	P	416.50	1.27	Fail
121	Sb	2	115	38465.25	P	1177.00	3.06	Fail
137	Ba	2	115	15112.49	P	550.50	3.64	Fail
205	Tl	2	209	83036.09	P	850.40	1.02	Fail
208	Pb	2	209	115560.00	P	1813.00	1.57	Fail
209	Bi	2	---	5219492.00	A	55050.00	1.05	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-3881.67	1.55	76.78	-5055.8	70 - 120	ISFail
45	Sc	1	161570.98	1.19	158070.19	102.2	70 - 120	
45	Sc	2	6453811.50	2.21	6406944.50	100.7	70 - 120	
72	Ge	1	90222.60	1.06	88651.82	101.8	70 - 120	
115	In	2	7406828.00	1.31	7384352.50	100.3	70 - 120	
209	Bi	2	5219491.50	1.05	5202967.00	100.3	70 - 120	

Calibration Standard QC Report

Acq. Method: DHL_3Fe.M Sample Name: 10X-160809
Operator: KL Instrument: ICPMS3
Date Acquired: Aug 9 2016 12:37 pm
Last Cal. Update: Aug 09 2016 12:35 pm

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)	Flag
6	Li	2	---	-19629.23	P	383.20	1.95	ISFail
7	Li	2	45	432408.59	P	8261.00	1.91	Fail
9	Be	2	45	144443.50	P	2969.00	2.06	Fail
11	B	2	45	120068.30	P	1757.00	1.46	Fail
23	Na	1	45	295790.41	P	1604.00	0.54	Fail
24	Mg	1	45	119897.70	P	957.30	0.80	Fail
27	Al	1	45	27945.11	P	356.30	1.28	Fail
39	K	1	45	63314.89	P	311.10	0.49	Fail
44	Ca	2	45	290460.09	P	9086.00	3.13	Fail
45	Sc	1	---	163871.50	P	1400.00	0.85	
45	Sc	2	---	6441649.00	A	124900.00	1.94	
47	Ti	1	45	1160.08	P	42.92	3.70	Fail
51	V	1	45	50469.89	P	868.10	1.72	Fail
51	V	2	---		P			
52	Cr	1	45	68834.85	P	602.80	0.88	Fail
55	Mn	1	45	26142.08	P	417.90	1.60	Fail
56	Fe	1	72	1069612.00	A	24000.00	2.24	Fail
59	Co	1	72	121947.00	P	1160.00	0.95	
60	Ni	1	72	35924.11	P	658.70	1.83	
60	Ni	2	---		P			
63	Cu	1	72	100456.60	P	498.00	0.50	Fail
63	Cu	2	---		P			
66	Zn	1	72	9852.08	P	58.18	0.59	Fail
66	Zn	2	---		P			
72	Ge	1	---	90028.47	P	394.00	0.44	
72	Ge	2	---		A			
75	As	1	72	5389.93	P	49.54	0.92	Fail
78	Se	1	72	308.04	P	9.84	3.20	Fail
88	Sr	2	115	602337.50	P	12840.00	2.13	Fail
95	Mo	2	115	108354.30	P	2536.00	2.34	Fail
107	Ag	2	115	282736.09	P	5107.00	1.81	Fail
111	Cd	2	115	61328.21	P	1125.00	1.83	Fail
115	In	2	---	7387452.00	A	82820.00	1.12	
118	Sn	2	115	159923.91	P	2799.00	1.75	Fail
121	Sb	2	115	189023.00	P	4633.00	2.45	Fail
137	Ba	2	115	73661.36	P	1339.00	1.82	Fail
205	Tl	2	209	410096.00	P	4859.00	1.18	Fail
208	Pb	2	209	560275.31	P	9752.00	1.74	Fail
209	Bi	2	---	5195223.00	A	67090.00	1.29	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-19629.24	1.95	76.78	-25566.9	70 - 120	ISFail
45	Sc	1	163871.55	0.85	158070.19	103.7	70 - 120	
45	Sc	2	6441649.50	1.94	6406944.50	100.5	70 - 120	
72	Ge	1	90028.47	0.44	88651.82	101.6	70 - 120	
115	In	2	7387452.50	1.12	7384352.50	100.0	70 - 120	
209	Bi	2	5195223.50	1.29	5202967.00	99.9	70 - 120	

Calibration Standard QC Report

Acq. Method: DHL_3Fe.M Sample Name: 5X-160809
Operator: KL Instrument: ICPMS3
Date Acquired: Aug 9 2016 12:43 pm
Last Cal. Update: Aug 09 2016 12:41 pm

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)	Flag
6	Li	2	---	-39450.97	P	848.30	2.15	ISFail
7	Li	2	45	859389.31	A	4295.00	0.50	Fail
9	Be	2	45	288149.81	P	5638.00	1.96	Fail
11	B	2	45	237918.00	P	3433.00	1.44	Fail
23	Na	1	45	568962.38	P	7291.00	1.28	Fail
24	Mg	1	45	239276.80	P	2504.00	1.05	Fail
27	Al	1	45	55187.29	P	557.70	1.01	Fail
39	K	1	45	120214.40	P	144.40	0.12	Fail
44	Ca	2	45	556133.69	P	12600.00	2.27	Fail
45	Sc	1	---	160100.41	P	785.10	0.49	
45	Sc	2	---	6261295.00	A	110100.00	1.76	
47	Ti	1	45	2330.48	P	68.35	2.93	
51	V	1	45	98896.30	P	1086.00	1.10	Fail
51	V	2	---		A			
52	Cr	1	45	134880.20	P	1476.00	1.09	Fail
55	Mn	1	45	51629.94	P	259.30	0.50	
56	Fe	1	72	2048862.00	A	26700.00	1.30	Fail
59	Co	1	72	240143.91	P	3156.00	1.31	
60	Ni	1	72	70495.25	P	308.50	0.44	
60	Ni	2	---		P			
63	Cu	1	72	195537.50	P	2292.00	1.17	
63	Cu	2	---		P			
66	Zn	1	72	19348.32	P	160.80	0.83	Fail
66	Zn	2	---		P			
72	Ge	1	---	88032.42	P	653.70	0.74	
72	Ge	2	---		A			
75	As	1	72	10479.46	P	46.78	0.45	Fail
78	Se	1	72	601.65	P	3.54	0.59	Fail
88	Sr	2	115	1235870.00	A	19360.00	1.57	Fail
95	Mo	2	115	210659.70	P	2732.00	1.30	Fail
107	Ag	2	115	551580.50	P	10460.00	1.90	Fail
111	Cd	2	115	117569.70	P	2118.00	1.80	Fail
115	In	2	---	7231429.00	A	105800.00	1.46	
118	Sn	2	115	314553.91	P	5363.00	1.71	Fail
121	Sb	2	115	369819.19	P	6133.00	1.66	Fail
137	Ba	2	115	143935.50	P	2716.00	1.89	Fail
205	Tl	2	209	810074.38	P	14910.00	1.84	Fail
208	Pb	2	209	1102986.00	P	19000.00	1.72	Fail
209	Bi	2	---	5066186.00	A	31410.00	0.62	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-39450.97	2.15	76.78	-51384.5	70 - 120	ISFail
45	Sc	1	160100.36	0.49	158070.19	101.3	70 - 120	
45	Sc	2	6261294.50	1.76	6406944.50	97.7	70 - 120	
72	Ge	1	88032.41	0.74	88651.82	99.3	70 - 120	
115	In	2	7231429.00	1.46	7384352.50	97.9	70 - 120	
209	Bi	2	5066186.00	0.62	5202967.00	97.4	70 - 120	

Calibration Standard QC Report

Acq. Method: DHL_3Fe.M Sample Name: 2X-160809
Operator: KL Instrument: ICPMS3
Date Acquired: Aug 9 2016 12:49 pm
Last Cal. Update: Aug 09 2016 12:47 pm

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)	Flag
6	Li	2	---	-92547.78	P	610.90	0.66	ISFail
7	Li	2	45	2055320.00	A	6991.00	0.34	Fail
9	Be	2	45	683394.69	A	4914.00	0.72	Fail
11	B	2	45	576713.50	P	2557.00	0.44	Fail
23	Na	1	45	1404880.00	A	14730.00	1.05	Fail
24	Mg	1	45	578383.88	P	6434.00	1.11	
27	Al	1	45	134799.70	P	2720.00	2.02	Fail
39	K	1	45	285831.19	P	781.30	0.27	Fail
44	Ca	2	45	1412857.00	A	25870.00	1.83	Fail
45	Sc	1	---	155861.80	P	491.20	0.32	
45	Sc	2	---	6152547.00	A	97850.00	1.59	
47	Ti	1	45	5794.77	P	204.00	3.52	
51	V	1	45	240871.30	P	1410.00	0.59	
51	V	2	---		A			
52	Cr	1	45	329345.00	P	2941.00	0.89	
55	Mn	1	45	125528.70	P	257.30	0.20	
56	Fe	1	72	4881959.00	A	31120.00	0.64	
59	Co	1	72	583012.50	P	6102.00	1.05	
60	Ni	1	72	171085.50	P	356.40	0.21	
60	Ni	2	---		P			
63	Cu	1	72	471235.19	P	1321.00	0.28	
63	Cu	2	---		A			
66	Zn	1	72	46169.71	P	361.90	0.78	
66	Zn	2	---		P			
72	Ge	1	---	85858.36	P	473.70	0.55	
72	Ge	2	---		A			
75	As	1	72	25145.85	P	42.53	0.17	Fail
78	Se	1	72	1414.53	P	7.55	0.53	Fail
88	Sr	2	115	2920739.00	A	29390.00	1.01	Fail
95	Mo	2	115	513910.31	P	6728.00	1.31	Fail
107	Ag	2	115	1360042.00	A	20930.00	1.54	Fail
111	Cd	2	115	282658.91	P	4566.00	1.62	Fail
115	In	2	---	6950477.00	A	79190.00	1.14	
118	Sn	2	115	763250.19	P	7455.00	0.98	Fail
121	Sb	2	115	897868.50	P	9308.00	1.04	Fail
137	Ba	2	115	350302.50	P	4136.00	1.18	Fail
205	Tl	2	209	2058289.00	A	35310.00	1.72	Fail
208	Pb	2	209	2754049.00	A	37450.00	1.36	Fail
209	Bi	2	---	4942278.00	A	58580.00	1.19	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-92547.78	0.66	76.78	-120542.6	70 - 120	ISFail
45	Sc	1	155861.84	0.32	158070.19	98.6	70 - 120	
45	Sc	2	6152547.50	1.59	6406944.50	96.0	70 - 120	
72	Ge	1	85858.37	0.55	88651.82	96.8	70 - 120	
115	In	2	6950477.50	1.14	7384352.50	94.1	70 - 120	
209	Bi	2	4942278.00	1.19	5202967.00	95.0	70 - 120	

Calibration Standard QC Report

Acq. Method: DHL_3Fe.M Sample Name: H-160809
Operator: KL Instrument: ICPMS3
Date Acquired: Aug 9 2016 12:55 pm
Last Cal. Update: Aug 09 2016 12:52 pm

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)	Flag
6	Li	2	---	-180102.91	P	1887.00	1.05	ISFail
7	Li	2	45	4028771.00	A	21070.00	0.52	Fail
9	Be	2	45	1346636.00	A	10300.00	0.76	Fail
11	B	2	45	1147521.00	A	18600.00	1.62	Fail
23	Na	1	45	2697100.00	A	7631.00	0.28	Fail
24	Mg	1	45	1199446.00	A	15020.00	1.25	
27	Al	1	45	266288.00	P	2957.00	1.11	
39	K	1	45	557212.69	P	4537.00	0.81	Fail
44	Ca	2	45	2670122.00	A	39330.00	1.47	Fail
45	Sc	1	---	154804.91	P	798.80	0.52	
45	Sc	2	---	6027486.00	A	99200.00	1.65	
47	Ti	1	45	11449.88	P	127.40	1.11	
51	V	1	45	474757.91	P	2110.00	0.44	
51	V	2	---		A			
52	Cr	1	45	648571.81	P	1651.00	0.25	
55	Mn	1	45	245434.30	P	883.90	0.36	
56	Fe	1	72	9536205.00	A	79560.00	0.83	
59	Co	1	72	1171404.00	A	11090.00	0.95	
60	Ni	1	72	329269.00	P	3471.00	1.05	
60	Ni	2	---		A			
63	Cu	1	72	927079.50	M	19060.00	2.06	
63	Cu	2	---		A			
66	Zn	1	72	88347.85	P	460.10	0.52	
66	Zn	2	---		P			
72	Ge	1	---	83956.57	P	181.70	0.22	
72	Ge	2	---		A			
75	As	1	72	48699.76	P	116.50	0.24	
78	Se	1	72	2737.60	P	10.85	0.40	
88	Sr	2	115	5612955.00	A	56370.00	1.00	Fail
95	Mo	2	115	1058171.00	A	4867.00	0.46	Fail
107	Ag	2	115	2596907.00	A	2732.00	0.11	Fail
111	Cd	2	115	549297.31	P	1150.00	0.21	Fail
115	In	2	---	6804297.00	A	14860.00	0.22	
118	Sn	2	115	1534882.00	A	13500.00	0.88	Fail
121	Sb	2	115	1803670.00	A	10380.00	0.58	Fail
137	Ba	2	115	687678.69	P	2013.00	0.29	Fail
205	Tl	2	209	4003026.00	A	37020.00	0.92	Fail
208	Pb	2	209	5483501.00	A	9428.00	0.17	Fail
209	Bi	2	---	4848076.00	A	33810.00	0.70	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-180102.91	1.05	76.78	-234582.3	70 - 120	ISFail
45	Sc	1	154804.94	0.52	158070.19	97.9	70 - 120	
45	Sc	2	6027486.00	1.65	6406944.50	94.1	70 - 120	
72	Ge	1	83956.57	0.22	88651.82	94.7	70 - 120	
115	In	2	6804297.50	0.22	7384352.50	92.1	70 - 120	
209	Bi	2	4848076.00	0.70	5202967.00	93.2	70 - 120	

Calibration Standard QC Report

Acq. Method: DHL_3Fe.M Sample Name: H2-160809
Operator: KL Instrument: ICPMS3
Date Acquired: Aug 9 2016 01:01 pm
Last Cal. Update: Aug 09 2016 12:58 pm

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)	Flag
6	Li	2	---	-695108.38	A	5548.00	0.80	ISFail
7	Li	2	45	16324680.00	A	45420.00	0.28	Fail
9	Be	2	45	5098597.00	A	45540.00	0.89	
11	B	2	45	4479131.00	A	27290.00	0.61	Fail
23	Na	1	45	6521873.00	A	60180.00	0.92	Fail
24	Mg	1	45	2874443.00	A	42430.00	1.48	
27	Al	1	45	2506.51	P	21.68	0.86	Fail
39	K	1	45	1451327.00	A	7604.00	0.52	Fail
44	Ca	2	45	6641747.00	A	83680.00	1.26	Fail
45	Sc	1	---	157244.80	P	431.30	0.27	
45	Sc	2	---	6089865.00	A	74730.00	1.23	
47	Ti	1	45	47519.80	P	854.10	1.80	
51	V	1	45	1959345.00	A	19960.00	1.02	
51	V	2	---		A			
52	Cr	1	45	2623501.00	A	40880.00	1.56	
55	Mn	1	45	1023403.00	A	19900.00	1.94	
56	Fe	1	72	16818.04	P	566.10	3.37	Fail
59	Co	1	72	4471216.00	A	68540.00	1.53	
60	Ni	1	72	1335689.00	A	16620.00	1.24	
60	Ni	2	---		A			
63	Cu	1	72	3573923.00	A	51580.00	1.44	
63	Cu	2	---		A			
66	Zn	1	72	344616.81	P	3985.00	1.16	
66	Zn	2	---		A			
72	Ge	1	---	85259.96	P	597.60	0.70	
72	Ge	2	---		A			
75	As	1	72	195626.80	P	2133.00	1.09	
78	Se	1	72	10908.70	P	95.50	0.88	
88	Sr	2	115	23456990.00	A	236000.00	1.01	Fail
95	Mo	2	115	4277989.00	A	26110.00	0.61	
107	Ag	2	115	1475.72	P	191.00	12.94	Fail
111	Cd	2	115	2274770.00	A	16520.00	0.73	
115	In	2	---	6927955.00	A	9047.00	0.13	
118	Sn	2	115	6163197.00	A	4526.00	0.07	Fail
121	Sb	2	115	2224.75	P	132.90	5.97	Fail
137	Ba	2	115	2890665.00	A	29900.00	1.03	Fail
205	Tl	2	209	15777200.00	A	100800.00	0.64	
208	Pb	2	209	21376310.00	A	153600.00	0.72	
209	Bi	2	---	4818865.00	A	41690.00	0.87	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-695108.44	0.80	76.78	-905371.9	70 - 120	ISFail
45	Sc	1	157244.86	0.27	158070.19	99.5	70 - 120	
45	Sc	2	6089865.50	1.23	6406944.50	95.1	70 - 120	
72	Ge	1	85259.96	0.70	88651.82	96.2	70 - 120	
115	In	2	6927955.50	0.13	7384352.50	93.8	70 - 120	
209	Bi	2	4818864.50	0.87	5202967.00	92.6	70 - 120	

ICSA QC Report

C:\ICPCHEM\1\DATA\16H09l01.B\016ICSA.D\016ICSA.D#

Date Acquired:	Aug 9 2016 01:18 pm	Sample Name:	**ICSA-160809**
Acq. Method:	DHL_3Fe.M	Misc Info:	ICSAICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 09 2016 01:04 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	RL S	RL Aq	Flag
7	Li	2	45	0.478	ppb	9.59	8.00	5.00	
9	Be	2	45	0.117	ppb	38.20	0.32	0.80	
11	B	2	45	8.638	ppb	3.46	30.00	30.00	
23	Na	1	45	101700.000	ppb	1.19	#######	#######	
24	Mg	1	45	89070.000	ppb	1.04	#######	#######	
27	Al	1	45	96290.000	ppb	0.44	#######	#######	
39	K	1	45	92830.000	ppb	0.95	#######	#######	
44	Ca	2	45	90970.000	ppb	2.83	#######	#######	
47	Ti	1	45	1967.000	ppb	0.21	10.00	10.00	
51	V	1	45	0.109	ppb	13.43	10.00	10.00	
52	Cr	1	45	0.894	ppb	4.88	8.00	5.00	
55	Mn	1	45	0.844	ppb	9.88	8.00	10.00	
56	Fe	1	72	92080.000	ppb	1.45	#######	#######	
59	Co	1	72	1.329	ppb	5.32	8.00	10.00	
60	Ni	1	72	0.485	ppb	11.46	8.00	10.00	
63	Cu	1	72	2.282	ppb	0.83	8.00	10.00	
66	Zn	1	72	2.100	ppb	1.97	10.00	5.00	
75	As	1	72	0.765	ppb	2.73	4.00	5.00	
78	Se	1	72	0.590	ppb	13.84	2.00	5.00	
88	Sr	2	115	1.237	ppb	5.49	10.00	10.00	
95	Mo	2	115	1909.000	ppb	2.87	8.00	5.00	
107	Ag	2	115	0.099	ppb	14.31	0.80	2.00	
111	Cd	2	115	0.197	ppb	22.45	1.20	1.00	
118	Sn	2	115	0.592	ppb	9.39	10.00	10.00	
121	Sb	2	115	0.145	ppb	7.64	4.00	2.50	
137	Ba	2	115	0.539	ppb	12.33	8.00	10.00	
205	Tl	2	209	0.265	ppb	18.78	4.00	1.50	
208	Pb	2	209	0.424	ppb	8.56	1.20	1.00	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	11.48	362.20	76.78	15.0	70 - 120	ISFail
45	Sc	1	148376.02	0.59	158070.19	93.9	70 - 120	
45	Sc	2	6156980.50	1.85	6406944.50	96.1	70 - 120	
72	Ge	1	80882.91	0.84	88651.82	91.2	70 - 120	
115	In	2	6870784.00	2.23	7384352.50	93.0	70 - 120	
209	Bi	2	4330707.50	1.99	5202967.00	83.2	70 - 120	

ICS-AB QC Report

C:\ICPCHEM\1\DATA\16H09l01.B\017ICSB.D\017ICSB.D#

Date Acquired:	Aug 9 2016 01:24 pm	Sample Name:	**ICSAB-160809**
Acq. Method:	DHL_3Fe.M	Misc Info:	ICSBICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 09 2016 01:04 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)			Flag
7	Li	2	45	0.40	ppb	2.58	---	80 -		120	
9	Be	2	45	0.03	ppb	8.03	---	80 -		120	
11	B	2	45	6.35	ppb	1.20	---	80 -		120	
23	Na	1	45	96960.00	ppb	0.63	100000.00	80 -		120	
24	Mg	1	45	90120.00	ppb	1.11	100000.00	80 -		120	
27	Al	1	45	93870.00	ppb	0.65	100000.00	80 -		120	
39	K	1	45	91490.00	ppb	0.58	100000.00	80 -		120	
44	Ca	2	45	91530.00	ppb	3.21	100000.00	80 -		120	
47	Ti	1	45	1935.00	ppb	1.62	---	80 -		120	
51	V	1	45	39.09	ppb	0.68	40.00	80 -		120	
52	Cr	1	45	20.74	ppb	1.41	20.00	80 -		120	
55	Mn	1	45	18.98	ppb	0.93	20.00	80 -		120	
56	Fe	1	72	92210.00	ppb	0.80	100000.00	80 -		120	
59	Co	1	72	39.88	ppb	0.42	40.00	80 -		120	
60	Ni	1	72	36.63	ppb	1.39	40.00	80 -		120	
63	Cu	1	72	20.22	ppb	0.75	20.00	80 -		120	
66	Zn	1	72	19.71	ppb	2.04	20.00	80 -		120	
75	As	1	72	19.81	ppb	0.30	20.00	80 -		120	
78	Se	1	72	18.75	ppb	2.32	20.00	80 -		120	
88	Sr	2	115	1.33	ppb	1.67	---	80 -		120	
95	Mo	2	115	1935.00	ppb	2.13	---	80 -		120	
107	Ag	2	115	17.74	ppb	2.73	20.00	80 -		120	
111	Cd	2	115	9.02	ppb	3.94	10.00	80 -		120	
118	Sn	2	115	0.55	ppb	2.97	---	80 -		120	
121	Sb	2	115	0.07	ppb	4.90	---	80 -		120	
137	Ba	2	115	0.45	ppb	15.68	---	80 -		120	
205	Tl	2	209	0.13	ppb	1.84	---	80 -		120	
208	Pb	2	209	0.35	ppb	3.71	---	80 -		120	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	39.32	24.84	76.78	51.2	70 -		120	ISFail
45	Sc	1	143697.27	0.32	158070.19	90.9	70 -		120	
45	Sc	2	6567728.50	2.23	6406944.50	102.5	70 -		120	
72	Ge	1	79282.91	0.67	88651.82	89.4	70 -		120	
115	In	2	7038518.00	2.36	7384352.50	95.3	70 -		120	
209	Bi	2	4336473.50	1.65	5202967.00	83.3	70 -		120	

CCV QC Report

C:\ICPCHEM\1\DATA\16H09l01.B\020ICV.D\020ICV.D#

Date Acquired:	Aug 9 2016 01:42 pm	Sample Name:	**ICV1-160809**
Acq. Method:	DHL_3Fe.M	Misc Info:	ICV ICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 09 2016 01:04 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	129.30	ppb	1.81	100.00	90 -	110	129.3	Fail
9	Be	2	45	114.40	ppb	1.63	100.00	90 -	110	114.4	Fail
11	B	2	45	109.80	ppb	0.44	100.00	90 -	110	109.8	
23	Na	1	45	2933.00	ppb	0.80	2500.00	90 -	110	117.3	Fail
24	Mg	1	45	2666.00	ppb	0.48	2500.00	90 -	110	106.6	
27	Al	1	45	2371.00	ppb	2.40	2500.00	90 -	110	94.8	
39	K	1	45	2496.00	ppb	1.03	2500.00	90 -	110	99.8	
44	Ca	2	45	2519.00	ppb	5.00	2500.00	90 -	110	100.8	
47	Ti	1	45	98.48	ppb	3.15	100.00	90 -	110	98.5	
51	V	1	45	104.90	ppb	0.63	100.00	90 -	110	104.9	
52	Cr	1	45	110.20	ppb	0.50	100.00	90 -	110	110.2	Fail
55	Mn	1	45	97.83	ppb	0.85	100.00	90 -	110	97.8	
56	Fe	1	72	2550.00	ppb	0.86	2500.00	90 -	110	102.0	
59	Co	1	72	106.90	ppb	0.39	100.00	90 -	110	106.9	
60	Ni	1	72	105.20	ppb	0.60	100.00	90 -	110	105.2	
63	Cu	1	72	107.50	ppb	0.85	100.00	90 -	110	107.5	
66	Zn	1	72	103.10	ppb	0.74	100.00	90 -	110	103.1	
75	As	1	72	100.40	ppb	0.56	100.00	90 -	110	100.4	
78	Se	1	72	95.57	ppb	1.19	100.00	90 -	110	95.6	
88	Sr	2	115	112.40	ppb	1.71	100.00	90 -	110	112.4	Fail
95	Mo	2	115	98.76	ppb	1.83	100.00	90 -	110	98.8	
107	Ag	2	115	101.40	ppb	2.11	100.00	90 -	110	101.4	
111	Cd	2	115	98.66	ppb	2.13	100.00	90 -	110	98.7	
118	Sn	2	115	98.42	ppb	1.97	100.00	90 -	110	98.4	
121	Sb	2	115	98.00	ppb	1.85	100.00	90 -	110	98.0	
137	Ba	2	115	95.40	ppb	1.88	100.00	90 -	110	95.4	
205	Tl	2	209	96.22	ppb	1.09	100.00	90 -	110	96.2	
208	Pb	2	209	96.59	ppb	1.93	100.00	90 -	110	96.6	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	-32746.34	1.14	76.78	-42651.8	70 -	120		ISFail
45	Sc	1	151304.55	0.27	158070.19	95.7	70 -	120		
45	Sc	2	7310796.00	1.80	6406944.50	114.1	70 -	120		
72	Ge	1	86412.31	0.52	88651.82	97.5	70 -	120		
115	In	2	7162118.00	1.91	7384352.50	97.0	70 -	120		
209	Bi	2	4628968.50	1.21	5202967.00	89.0	70 -	120		

ICB QC Report

C:\ICPCHEM\1\DATA\16H09l01.B\021_ICB.D\021_ICB.D#

Date Acquired:	Aug 9 2016 01:48 pm	Sample Name:	**ICB1-160809**
Acq. Method:	DHL_3Fe.M	Misc Info:	ICB ICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 09 2016 01:04 pm	Instrument:	ICPMS3

QC Elements

Element				Conc.		RSD(%)	High Limit	Flag
7	Li	2	45	0.29	ppb	7.50	2.00	
9	Be	2	45	0.09	ppb	14.93	0.40	
11	B	2	45	4.74	ppb	3.28	10.00	
23	Na	1	45	11.32	ppb	2.07	50.00	
24	Mg	1	45	4.67	ppb	15.18	50.00	
27	Al	1	45	11.35	ppb	4.40	50.00	Failaq
39	K	1	45	9.77	ppb	1.38	50.00	
44	Ca	2	45	12.78	ppb	4.86	50.00	
47	Ti	1	45	0.21	ppb	52.92	4.00	
51	V	1	45	0.08	ppb	4.76	4.00	
52	Cr	1	45	0.13	ppb	4.27	2.00	
55	Mn	1	45	0.12	ppb	13.64	2.00	
56	Fe	1	72	3.53	ppb	8.32	50.00	
59	Co	1	72	0.09	ppb	13.04	2.00	
60	Ni	1	72	0.07	ppb	10.98	2.00	
63	Cu	1	72	0.14	ppb	8.26	2.00	
66	Zn	1	72	0.24	ppb	9.19	4.00	
75	As	1	72	0.21	ppb	2.42	2.00	
78	Se	1	72	-0.03	ppb	8.18	0.60	
88	Sr	2	115	0.26	ppb	4.89	4.00	
95	Mo	2	115	0.26	ppb	9.18	2.00	
107	Ag	2	115	0.06	ppb	7.48	0.40	
111	Cd	2	115	0.09	ppb	30.52	0.40	
118	Sn	2	115	0.20	ppb	2.23	20.00	
121	Sb	2	115	0.11	ppb	4.20	2.00	
137	Ba	2	115	0.11	ppb	12.13	2.00	
205	Tl	2	209	0.22	ppb	7.79	2.00	
208	Pb	2	209	0.12	ppb	7.88	0.40	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2 RHig	-12.64	######	76.78	-16.5	70 - 120	ISFail
45	Sc	1	154465.72	1.48	158070.19	97.7	70 - 120	
45	Sc	2	7434230.00	2.56	6406944.50	116.0	70 - 120	
72	Ge	1	88798.62	1.36	88651.82	100.2	70 - 120	
115	In	2	7172536.50	2.37	7384352.50	97.1	70 - 120	
209	Bi	2	4672709.00	1.72	5202967.00	89.8	70 - 120	

CCV QC Report

C:\ICPCHEM\1\DATA\16H09l01.B\022LCVL.D\022LCVL.D#

Date Acquired:	Aug 9 2016 01:54 pm	Sample Name:	**ILCVL-160809**
Acq. Method:	DHL_3Fe.M	Misc Info:	LCVLICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 09 2016 01:04 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	13.80	ppb	2.27	10.00	70 -	130	138.0	Fail
9	Be	2	45	1.21	ppb	3.36	1.00	70 -	130	120.5	
11	B	2	45	24.35	ppb	1.79	20.00	70 -	130	121.8	
23	Na	1	45	129.60	ppb	1.83	100.00	70 -	130	129.6	
24	Mg	1	45	109.10	ppb	3.35	100.00	70 -	130	109.1	
27	Al	1	45	99.67	ppb	0.51	100.00	70 -	130	99.7	
39	K	1	45	110.80	ppb	4.64	100.00	70 -	130	110.8	
44	Ca	2	45	95.31	ppb	4.48	100.00	70 -	130	95.3	
47	Ti	1	45	5.34	ppb	2.11	5.00	70 -	130	106.8	
51	V	1	45	1.15	ppb	2.61	1.00	70 -	130	115.0	
52	Cr	1	45	5.66	ppb	1.07	5.00	70 -	130	113.2	
55	Mn	1	45	5.05	ppb	0.65	5.00	70 -	130	101.0	
56	Fe	1	72	108.90	ppb	1.07	100.00	70 -	130	108.9	
59	Co	1	72	5.53	ppb	1.64	5.00	70 -	130	110.6	
60	Ni	1	72	5.46	ppb	4.65	5.00	70 -	130	109.2	
63	Cu	1	72	5.63	ppb	1.11	5.00	70 -	130	112.5	
66	Zn	1	72	5.82	ppb	5.06	5.00	70 -	130	116.4	
75	As	1	72	5.41	ppb	1.94	5.00	70 -	130	108.1	
78	Se	1	72	5.64	ppb	4.93	5.00	70 -	130	112.8	
88	Sr	2	115	5.61	ppb	2.78	5.00	70 -	130	112.1	
95	Mo	2	115	5.26	ppb	2.68	5.00	70 -	130	105.2	
107	Ag	2	115	2.11	ppb	3.20	2.00	70 -	130	105.6	
111	Cd	2	115	1.06	ppb	8.62	1.00	70 -	130	106.1	
118	Sn	2	115	5.13	ppb	1.54	5.00	70 -	130	102.6	
121	Sb	2	115	2.05	ppb	1.64	2.00	70 -	130	102.4	
137	Ba	2	115	4.82	ppb	1.91	5.00	70 -	130	96.4	
205	Tl	2	209	1.09	ppb	2.13	1.00	70 -	130	108.5	
208	Pb	2	209	1.06	ppb	0.80	1.00	70 -	130	106.0	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	-3529.36	3.10	76.78	-4597.0	70 -	120	ISFail
45	Sc	1	155051.92	1.11	158070.19	98.1	70 -	120	
45	Sc	2	7390682.50	2.92	6406944.50	115.4	70 -	120	
72	Ge	1	88977.75	1.41	88651.82	100.4	70 -	120	
115	In	2	7193810.00	1.54	7384352.50	97.4	70 -	120	
209	Bi	2	4621289.00	1.35	5202967.00	88.8	70 -	120	

CCV QC Report

C:\ICPCHEM\1\DATA\16H09l01.B\110CCV1.D\110CCV1.D#

Date Acquired:	Aug 9 2016 10:34 pm	Sample Name:	**CCV5-160809**
Acq. Method:	DHL_3Fe.M	Misc Info:	CCV ICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 09 2016 01:04 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	199.60	ppb	1.70	200.00	90 -	110	99.8	
9	Be	2	45	187.90	ppb	1.75	200.00	90 -	110	94.0	
11	B	2	45	183.10	ppb	2.34	200.00	90 -	110	91.6	
23	Na	1	45	5664.00	ppb	1.50	5000.00	90 -	110	113.3	Fail
24	Mg	1	45	5213.00	ppb	0.36	5000.00	90 -	110	104.3	
27	Al	1	45	4926.00	ppb	0.82	5000.00	90 -	110	98.5	
39	K	1	45	5156.00	ppb	0.14	5000.00	90 -	110	103.1	
44	Ca	2	45	5435.00	ppb	2.25	5000.00	90 -	110	108.7	
47	Ti	1	45	196.60	ppb	1.35	200.00	90 -	110	98.3	
51	V	1	45	205.10	ppb	0.86	200.00	90 -	110	102.6	
52	Cr	1	45	207.80	ppb	1.07	200.00	90 -	110	103.9	
55	Mn	1	45	197.10	ppb	0.56	200.00	90 -	110	98.6	
56	Fe	1	72	5067.00	ppb	0.66	5000.00	90 -	110	101.3	
59	Co	1	72	213.10	ppb	0.57	200.00	90 -	110	106.6	
60	Ni	1	72	210.30	ppb	0.93	200.00	90 -	110	105.2	
63	Cu	1	72	215.20	ppb	0.34	200.00	90 -	110	107.6	
66	Zn	1	72	206.50	ppb	0.33	200.00	90 -	110	103.3	
75	As	1	72	209.00	ppb	0.28	200.00	90 -	110	104.5	
78	Se	1	72	199.60	ppb	0.92	200.00	90 -	110	99.8	
88	Sr	2	115	217.20	ppb	1.12	200.00	90 -	110	108.6	
95	Mo	2	115	195.80	ppb	1.76	200.00	90 -	110	97.9	
107	Ag	2	115	201.30	ppb	3.08	200.00	90 -	110	100.7	
111	Cd	2	115	197.50	ppb	0.70	200.00	90 -	110	98.8	
118	Sn	2	115	196.10	ppb	1.09	200.00	90 -	110	98.1	
121	Sb	2	115	190.60	ppb	1.19	200.00	90 -	110	95.3	
137	Ba	2	115	191.80	ppb	1.26	200.00	90 -	110	95.9	
205	Tl	2	209	208.60	ppb	1.56	200.00	90 -	110	104.3	
208	Pb	2	209	203.40	ppb	1.51	200.00	90 -	110	101.7	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	-75664.59	3.31	76.78	-98552.4	70 -	120		ISFail
45	Sc	1	124785.66	0.45	158070.19	78.9	70 -	120		
45	Sc	2	6302517.50	2.28	6406944.50	98.4	70 -	120		
72	Ge	1	68975.04	0.29	88651.82	77.8	70 -	120		
115	In	2	6306791.00	1.45	7384352.50	85.4	70 -	120		
209	Bi	2	4367557.00	1.66	5202967.00	83.9	70 -	120		

CCV QC Report

C:\ICPCHEM\1\DATA\16H09l01.B\112LCVL.D\112LCVL.D#

Date Acquired:	Aug 9 2016 10:45 pm	Sample Name:	**LCVL5-160809**
Acq. Method:	DHL_3Fe.M	Misc Info:	LCVLICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 09 2016 01:04 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	9.98	ppb	1.41	10.00	70 -	130	99.8	
9	Be	2	45	0.98	ppb	5.81	1.00	70 -	130	97.8	
11	B	2	45	19.45	ppb	2.92	20.00	70 -	130	97.3	
23	Na	1	45	84.87	ppb	0.87	100.00	70 -	130	84.9	
24	Mg	1	45	105.80	ppb	2.40	100.00	70 -	130	105.8	
27	Al	1	45	107.10	ppb	2.86	100.00	70 -	130	107.1	
39	K	1	45	104.40	ppb	1.08	100.00	70 -	130	104.4	
44	Ca	2	45	104.20	ppb	5.11	100.00	70 -	130	104.2	
47	Ti	1	45	5.37	ppb	10.81	5.00	70 -	130	107.4	
51	V	1	45	1.18	ppb	3.25	1.00	70 -	130	118.0	
52	Cr	1	45	5.30	ppb	1.79	5.00	70 -	130	106.0	
55	Mn	1	45	5.07	ppb	3.86	5.00	70 -	130	101.5	
56	Fe	1	72	112.20	ppb	1.84	100.00	70 -	130	112.2	
59	Co	1	72	5.31	ppb	1.44	5.00	70 -	130	106.3	
60	Ni	1	72	5.38	ppb	1.03	5.00	70 -	130	107.6	
63	Cu	1	72	5.42	ppb	1.93	5.00	70 -	130	108.4	
66	Zn	1	72	5.16	ppb	2.52	5.00	70 -	130	103.2	
75	As	1	72	5.39	ppb	0.72	5.00	70 -	130	107.7	
78	Se	1	72	5.61	ppb	6.00	5.00	70 -	130	112.3	
88	Sr	2	115	5.30	ppb	3.19	5.00	70 -	130	106.0	
95	Mo	2	115	4.85	ppb	3.25	5.00	70 -	130	97.1	
107	Ag	2	115	2.06	ppb	3.77	2.00	70 -	130	102.9	
111	Cd	2	115	0.99	ppb	10.34	1.00	70 -	130	98.7	
118	Sn	2	115	5.09	ppb	3.09	5.00	70 -	130	101.9	
121	Sb	2	115	1.94	ppb	3.14	2.00	70 -	130	96.8	
137	Ba	2	115	4.99	ppb	1.12	5.00	70 -	130	99.8	
205	Tl	2	209	1.11	ppb	2.10	1.00	70 -	130	111.2	
208	Pb	2	209	1.07	ppb	1.69	1.00	70 -	130	106.9	

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	RHigh	-2404.03	9.12	76.78	-3131.2	70 -	120	ISFail
45	Sc	1		128353.91	1.92	158070.19	81.2	70 -	120	
45	Sc	2		6258815.50	2.46	6406944.50	97.7	70 -	120	
72	Ge	1		71743.65	1.57	88651.82	80.9	70 -	120	
115	In	2		6551750.50	1.40	7384352.50	88.7	70 -	120	
209	Bi	2		4522111.00	0.97	5202967.00	86.9	70 -	120	

CCB QC Report

C:\ICPCHEM\1\DATA\16H09l01.B\113_CCB.D\113_CCB.D#

Date Acquired:	Aug 9 2016 10:51 pm	Sample Name:	**CCB5-160809**
Acq. Method:	DHL_3Fe.M	Misc Info:	CCB ICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 09 2016 01:04 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	MDL S	MDL Aq	Flag
7	Li	2	45	0.149	ppb	3.32	2.00	2.00	
9	Be	2	45	0.022	ppb	25.44	0.40	0.30	
11	B	2	45	1.737	ppb	3.08	10.00	10.00	
23	Na	1	45	-17.590	ppb	1.87	50.00	#####	
24	Mg	1	45	2.279	ppb	10.45	50.00	#####	
27	Al	1	45	13.230	ppb	7.09	50.00	10.00	FailAq
39	K	1	45	4.012	ppb	5.52	50.00	#####	
44	Ca	2	45	18.890	ppb	4.87	50.00	#####	
47	Ti	1	45	0.106	ppb	21.65	4.00	3.00	
51	V	1	45	0.021	ppb	11.72	4.00	3.00	
52	Cr	1	45	-0.001	ppb	13.25	2.00	2.00	
55	Mn	1	45	0.126	ppb	16.10	2.00	3.00	
56	Fe	1	72	4.464	ppb	16.01	50.00	30.00	
59	Co	1	72	0.028	ppb	8.22	2.00	3.00	
60	Ni	1	72	0.123	ppb	8.50	2.00	3.00	
63	Cu	1	72	0.069	ppb	13.63	2.00	2.00	
66	Zn	1	72	1.030	ppb	10.51	4.00	2.00	
75	As	1	72	0.068	ppb	3.47	2.00	2.00	
78	Se	1	72	0.168	ppb	15.60	0.60	2.00	
88	Sr	2	115	0.179	ppb	2.97	4.00	3.00	
95	Mo	2	115	0.045	ppb	7.02	2.00	2.00	
107	Ag	2	115	0.031	ppb	8.69	0.40	1.00	
111	Cd	2	115	0.020	ppb	14.59	0.40	0.30	
118	Sn	2	115	0.081	ppb	10.28	20.00	3.00	
121	Sb	2	115	0.036	ppb	14.80	2.00	0.80	
137	Ba	2	115	0.140	ppb	6.72	2.00	3.00	
205	Tl	2	209	0.062	ppb	3.96	2.00	0.50	
208	Pb	2	209	0.037	ppb	7.76	0.40	0.30	

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	RHigh	-49.93	23.51	76.78	-65.0	70 - 120	ISFail
45	Sc	1		130748.68	1.01	158070.19	82.7	70 - 120	
45	Sc	2		6263012.50	1.31	6406944.50	97.8	70 - 120	
72	Ge	1		72650.02	0.98	88651.82	81.9	70 - 120	
115	In	2		6516653.50	0.83	7384352.50	88.2	70 - 120	
209	Bi	2		4580867.00	0.91	5202967.00	88.0	70 - 120	

PB QC Report

C:\ICPCHEM\1\DATA\16H09l01.B\114__PB.D\114__PB.D#

76687

Date Acquired:	Aug 9 2016 10:57 pm	Sample Name:	MB-~~76663~~
Acq. Method:	DHL_3Fe.M	Misc Info:	MBLKICPMS_TWDOD
Operator:	KL	Bench Diln:	1.00
Last Cal. Update:	Aug 09 2016 01:04 pm	Auto Dil:	Undiluted
Instrument:	ICPMS3	Total Dil:	1.00

QC Elements

Element				Conc.		RSD(%)	MDL	RL	Flag
7	Li	2	45	0.116	ppb	3.19	2.0	5.00	
9	Be	2	45	-0.003	ppb	25.51	0.3	1.00	
11	B	2	45	1.221	ppb	2.79	10.0	30.00	
23	Na	1	45	-31.450	ppb	1.22	100.0	#####	
24	Mg	1	45	2.236	ppb	4.79	100.0	#####	
27	Al	1	45	2.962	ppb	5.20	10.0	30.00	
39	K	1	45	-6.666	ppb	1.69	100.0	#####	
44	Ca	2	45	19.140	ppb	5.33	100.0	#####	
47	Ti	1	45	0.063	ppb	49.99	3.0	10.00	
51	V	1	45	0.025	ppb	14.30	3.0	10.00	
52	Cr	1	45	-0.054	ppb	11.71	2.0	5.00	
55	Mn	1	45	0.051	ppb	11.45	3.0	10.00	
56	Fe	1	72	3.046	ppb	8.16	30.0	#####	
59	Co	1	72	-0.003	ppb	25.24	3.0	10.00	
60	Ni	1	72	-0.025	ppb	33.75	3.0	10.00	
63	Cu	1	72	0.015	ppb	3.83	2.0	10.00	
66	Zn	1	72	0.075	ppb	14.94	2.0	5.00	
75	As	1	72	-0.021	ppb	5.48	2.0	5.00	
78	Se	1	72	0.006	ppb	11.09	2.0	5.00	
88	Sr	2	115	0.061	ppb	4.52	3.0	10.00	
95	Mo	2	115	0.002	ppb	6.25	2.0	5.00	
107	Ag	2	115	0.009	ppb	18.42	1.0	2.00	
111	Cd	2	115	-0.005	ppb	35.37	0.3	1.00	
118	Sn	2	115	0.036	ppb	17.01	3.0	10.00	
121	Sb	2	115	0.014	ppb	16.13	0.8	2.50	
137	Ba	2	115	0.036	ppb	29.09	3.0	10.00	
205	Tl	2	209	0.034	ppb	5.09	0.5	1.50	
208	Pb	2	209	0.019	ppb	2.08	0.3	1.00	

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	RHig	-32.23	21.44	76.78	-42.0	70 - 120	ISFail
45	Sc	1		128496.87	0.88	158070.19	81.3	70 - 120	
45	Sc	2		6286610.50	2.57	6406944.50	98.1	70 - 120	
72	Ge	1		71501.47	1.37	88651.82	80.7	70 - 120	
115	In	2		6715174.00	1.12	7384352.50	90.9	70 - 120	
209	Bi	2		4679310.50	1.15	5202967.00	89.9	70 - 120	

LCS QC Report

C:\ICPCHEM\1\DATA\16H09l01.B\115_LCS.D\115_LCS.D#

76687

Date Acquired:	Aug 9 2016 11:03 pm	Sample Name:	LCS-~~76663~~
Acq. Method:	DHL_3Fe.M	Misc Info:	LCS ICPMS_TWDOD1
Operator:	KL	Bench Diln:	1.00
Last Cal. Update:	Aug 09 2016 01:04 pm	Auto Dil:	Undiluted
Instrument:	ICPMS3	Total Dil:	1.00

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	191.50	ppb	1.15	200.00	80 -	120	95.8	
9	Be	2	45	182.90	ppb	1.81	200.00	80 -	120	91.5	
11	B	2	45	175.40	ppb	2.15	200.00	80 -	120	87.7	
23	Na	1	45	5311.00	ppb	0.77	5000.00	80 -	120	106.2	
24	Mg	1	45	4913.00	ppb	1.22	5000.00	80 -	120	98.3	
27	Al	1	45	4890.00	ppb	1.43	5000.00	80 -	120	97.8	
39	K	1	45	4927.00	ppb	0.25	5000.00	80 -	120	98.5	
44	Ca	2	45	5070.00	ppb	1.73	5000.00	80 -	120	101.4	
47	Ti	1	45	205.00	ppb	1.82	200.00	80 -	120	102.5	
51	V	1	45	201.20	ppb	0.64	200.00	80 -	120	100.6	
52	Cr	1	45	203.50	ppb	1.03	200.00	80 -	120	101.8	
55	Mn	1	45	194.70	ppb	1.43	200.00	80 -	120	97.4	
56	Fe	1	72	4929.00	ppb	1.41	5000.00	80 -	120	98.6	
59	Co	1	72	206.50	ppb	0.63	200.00	80 -	120	103.3	
60	Ni	1	72	202.80	ppb	1.09	200.00	80 -	120	101.4	
63	Cu	1	72	210.10	ppb	0.11	200.00	80 -	120	105.1	
66	Zn	1	72	205.90	ppb	0.75	200.00	80 -	120	103.0	
75	As	1	72	206.60	ppb	0.27	200.00	80 -	120	103.3	
78	Se	1	72	201.40	ppb	2.05	200.00	80 -	120	100.7	
88	Sr	2	115	214.70	ppb	2.21	200.00	80 -	120	107.4	
95	Mo	2	115	191.20	ppb	1.94	200.00	80 -	120	95.6	
107	Ag	2	115	191.50	ppb	1.83	200.00	80 -	120	95.8	
111	Cd	2	115	196.00	ppb	1.40	200.00	80 -	120	98.0	
118	Sn	2	115	190.50	ppb	1.62	200.00	80 -	120	95.3	
121	Sb	2	115	189.00	ppb	1.43	200.00	80 -	120	94.5	
137	Ba	2	115	191.40	ppb	1.34	200.00	80 -	120	95.7	
205	Tl	2	209	206.20	ppb	1.22	200.00	80 -	120	103.1	
208	Pb	2	209	200.40	ppb	0.49	200.00	80 -	120	100.2	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	-69491.88	0.76	76.78	-90512.5	70 -	120	ISFail
45	Sc	1	124534.90	0.24	158070.19	78.8	70 -	120	
45	Sc	2	5894832.50	2.54	6406944.50	92.0	70 -	120	
72	Ge	1	68815.20	0.39	88651.82	77.6	70 -	120	
115	In	2	6077147.00	1.53	7384352.50	82.3	70 -	120	
209	Bi	2	4346663.50	0.36	5202967.00	83.5	70 -	120	

LCS QC Report

C:\ICPCHEM\1\DATA\16H09l01.B\116_LCS.D\116_LCS.D#

766878

Date Acquired:	Aug 9 2016 11:09 pm	Sample Name:	LCSD-~~766487~~
Acq. Method:	DHL_3Fe.M	Misc Info:	LCSDICPMS_TWDOD1
Operator:	KL	Bench Diln:	1.00
Last Cal. Update:	Aug 09 2016 01:04 pm	Auto Dil:	Undiluted
Instrument:	ICPMS3	Total Dil:	1.00

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	191.20	ppb	2.31	200.00	80 -	120	95.6	
9	Be	2	45	182.50	ppb	1.60	200.00	80 -	120	91.3	
11	B	2	45	181.90	ppb	1.50	200.00	80 -	120	91.0	
23	Na	1	45	5591.00	ppb	1.73	5000.00	80 -	120	111.8	
24	Mg	1	45	5220.00	ppb	1.87	5000.00	80 -	120	104.4	
27	Al	1	45	4960.00	ppb	1.21	5000.00	80 -	120	99.2	
39	K	1	45	5231.00	ppb	1.18	5000.00	80 -	120	104.6	
44	Ca	2	45	5361.00	ppb	1.46	5000.00	80 -	120	107.2	
47	Ti	1	45	201.90	ppb	1.78	200.00	80 -	120	101.0	
51	V	1	45	197.70	ppb	1.43	200.00	80 -	120	98.9	
52	Cr	1	45	200.30	ppb	1.10	200.00	80 -	120	100.2	
55	Mn	1	45	192.80	ppb	1.51	200.00	80 -	120	96.4	
56	Fe	1	72	4923.00	ppb	1.39	5000.00	80 -	120	98.5	
59	Co	1	72	206.40	ppb	0.81	200.00	80 -	120	103.2	
60	Ni	1	72	201.30	ppb	1.07	200.00	80 -	120	100.7	
63	Cu	1	72	207.80	ppb	1.42	200.00	80 -	120	103.9	
66	Zn	1	72	209.40	ppb	0.58	200.00	80 -	120	104.7	
75	As	1	72	206.40	ppb	0.76	200.00	80 -	120	103.2	
78	Se	1	72	204.40	ppb	1.81	200.00	80 -	120	102.2	
88	Sr	2	115	215.10	ppb	1.65	200.00	80 -	120	107.6	
95	Mo	2	115	191.70	ppb	1.74	200.00	80 -	120	95.9	
107	Ag	2	115	187.70	ppb	1.74	200.00	80 -	120	93.9	
111	Cd	2	115	196.00	ppb	1.99	200.00	80 -	120	98.0	
118	Sn	2	115	190.40	ppb	1.09	200.00	80 -	120	95.2	
121	Sb	2	115	183.70	ppb	1.22	200.00	80 -	120	91.9	
137	Ba	2	115	191.30	ppb	1.70	200.00	80 -	120	95.7	
205	Tl	2	209	207.10	ppb	1.32	200.00	80 -	120	103.6	
208	Pb	2	209	201.40	ppb	1.61	200.00	80 -	120	100.7	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	-69421.23	3.58	76.78	-90420.5	70 -	120	ISFail
45	Sc	1	126307.20	0.83	158070.19	79.9	70 -	120	
45	Sc	2	5852857.50	1.30	6406944.50	91.4	70 -	120	
72	Ge	1	68626.96	0.51	88651.82	77.4	70 -	120	
115	In	2	5902131.00	1.44	7384352.50	79.9	70 -	120	
209	Bi	2	4282167.00	0.80	5202967.00	82.3	70 -	120	

DT QC Report

C:\ICPCHEM\1\DATA\16H09l01.B\119DT1.D\119DT1.D#

Date Acquired:	Aug 9 2016 11:27 pm	Sample Name:	**1607337-26A SD**
Acq. Method:	DHL_3Fe.M	Misc Info:	SD ICPMS_TWDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	Aug 09 2016 01:04 pm	Auto Diln:	Undiluted
Instrument:	ICPMS3	Total Diln:	5.00

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)	Rec(%)	Flag
7	Li	2	45	0.02	ppb	3.26	-19.32	90 - 110	-0.6	
9	Be	2	45	-0.01	ppb	34.80	0.04	90 - 110	-188.5	
11	B	2	45	0.43	ppb	1.01	16.54	90 - 110	13.1	
23	Na	1	45	-51.29	ppb	1.59	131.00	90 - 110	-195.8	
24	Mg	1	45	-2.32	ppb	32.10	22.09	90 - 110	-52.4	
27	Al	1	45	-3.78	ppb	20.30	9.23	90 - 110	-204.5	
39	K	1	45	-42.82	ppb	2.32	8.69	90 - 110	######	
44	Ca	2	45	-29.56	ppb	2.42	69.33	90 - 110	-213.2	
47	Ti	1	45	0.03	ppb	24.74	0.09	90 - 110	141.6	
51	V	1	45	-0.16	ppb	3.90	0.05	90 - 110	######	
52	Cr	1	45	-0.11	ppb	21.60	0.03	90 - 110	######	
55	Mn	1	45	-0.07	ppb	61.76	0.09	90 - 110	-392.7	
56	Fe	1	72	-4.42	ppb	34.47	3.84	90 - 110	-574.7	
59	Co	1	72	-0.01	ppb	47.09	0.04	90 - 110	-98.8	
60	Ni	1	72	-0.06	ppb	16.54	0.05	90 - 110	-548.8	
63	Cu	1	72	-0.09	ppb	28.00	0.48	90 - 110	-90.8	
66	Zn	1	72	-0.25	ppb	32.97	0.70	90 - 110	-179.8	
75	As	1	72	-0.28	ppb	5.35	0.04	90 - 110	######	
78	Se	1	72	-0.28	ppb	30.99	0.11	90 - 110	######	
88	Sr	2	115	-0.06	ppb	7.29	1.23	90 - 110	-25.0	
95	Mo	2	115	0.00	ppb	16.95	0.10	90 - 110	-7.6	
107	Ag	2	115	0.00	ppb	12.48	0.04	90 - 110	21.3	
111	Cd	2	115	-0.01	ppb	16.29	0.04	90 - 110	-148.7	
118	Sn	2	115	0.00	ppb	8.48	0.14	90 - 110	6.9	
121	Sb	2	115	0.00	ppb	39.28	0.12	90 - 110	-6.2	
137	Ba	2	115	-0.03	ppb	31.39	0.15	90 - 110	-96.8	
205	Tl	2	209	-0.01	ppb	21.76	0.20	90 - 110	-13.8	
208	Pb	2	209	-0.02	ppb	10.64	0.06	90 - 110	-190.1	

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	RHig	-19.32	121.61	76.78	-25.2	70 -	120	ISFail
45	Sc	1		205868.92	1.08	158070.19	130.2	70 -	120	ISFail
45	Sc	2		9292643.00	0.62	6406944.50	145.0	70 -	120	ISFail
72	Ge	1		113752.76	1.31	88651.82	128.3	70 -	120	ISFail
115	In	2		10011364.00	0.59	7384352.50	135.6	70 -	120	ISFail
209	Bi	2		7018410.50	0.44	5202967.00	134.9	70 -	120	ISFail

DNR

PDS QC Report

C:\ICPCHEM\1\DATA\16H09l01.B\130_PDS.D\130_PDS.D#

Date Acquired:	Aug 10 2016 12:34 am	Sample Name:	**1607337-26A PDS**
Acq. Method:	DHL_3Fe.M	Misc Info:	PDS ICPMS_TWDOD1
Operator:	KL	Bench Diln:	1.00
Last Cal. Update:	Aug 09 2016 01:04 pm	Auto Diln:	Undiluted
Instrument:	ICPMS3	Total Diln:	1.00

QC Elements

Element				Conc.		RSD(%)	Ref Conc	Spike	Range	Rec(%)	Flag
7	Li	2	45	158.80	ppb	1.14	-36628.96	200	75-125	######	Fail
9	Be	2	45	163.50	ppb	1.31	0.04	200	75-125	81.7	
11	B	2	45	172.10	ppb	1.02	16.54	200	75-125	77.8	
23	Na	1	45	5485.00	ppb	0.79	131.00	5000	75-125	107.1	
24	Mg	1	45	5002.00	ppb	0.39	22.09	5000	75-125	99.6	
27	Al	1	45	4968.00	ppb	1.14	9.23	5000	75-125	99.2	
39	K	1	45	5000.00	ppb	0.39	8.69	5000	75-125	99.8	
44	Ca	2	45	5075.00	ppb	2.92	69.33	5000	75-125	100.1	
47	Ti	1	45	194.80	ppb	1.20	0.09	200	75-125	97.4	
51	V	1	45	195.00	ppb	0.28	0.05	200	75-125	97.5	
52	Cr	1	45	198.80	ppb	0.36	0.03	200	75-125	99.4	
55	Mn	1	45	190.20	ppb	0.66	0.09	200	75-125	95.1	
56	Fe	1	72	4874.00	ppb	0.71	3.84	5000	75-125	97.4	
59	Co	1	72	200.20	ppb	0.29	0.04	200	75-125	100.1	
60	Ni	1	72	194.10	ppb	0.24	0.05	200	75-125	97.0	
63	Cu	1	72	196.80	ppb	0.03	0.48	200	75-125	98.2	
66	Zn	1	72	197.30	ppb	0.51	0.70	200	75-125	98.3	
75	As	1	72	196.00	ppb	0.53	0.04	200	75-125	98.0	
78	Se	1	72	192.40	ppb	1.58	0.11	200	75-125	96.1	
88	Sr	2	115	200.30	ppb	1.60	1.23	200	75-125	99.5	
95	Mo	2	115	177.70	ppb	1.78	0.10	200	75-125	88.8	
107	Ag	2	115	191.70	ppb	1.20	0.04	200	75-125	95.8	
111	Cd	2	115	184.10	ppb	1.39	0.04	200	75-125	92.0	
118	Sn	2	115	191.90	ppb	1.65	0.14	200	75-125	95.9	
121	Sb	2	115	181.40	ppb	1.54	0.12	200	75-125	90.6	
137	Ba	2	115	187.90	ppb	1.31	0.15	200	75-125	93.9	
205	Tl	2	209	199.10	ppb	1.51	0.20	200	75-125	99.4	
208	Pb	2	209	193.30	ppb	1.60	0.06	200	75-125	96.6	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-36628.96	4.68	76.78	-47708.9	70 - 120	ISFail
45	Sc	1	125599.98	0.73	158070.19	79.5	70 - 120	
45	Sc	2	5386959.00	1.27	6406944.50	84.1	70 - 120	
72	Ge	1	68421.66	0.57	88651.82	77.2	70 - 120	
115	In	2	5853272.50	1.15	7384352.50	79.3	70 - 120	
209	Bi	2	4369750.00	0.72	5202967.00	84.0	70 - 120	

CCV QC Report

C:\ICPCHEM\1\DATA\16H09l01.B\131CCV1.D\131CCV1.D#

Date Acquired:	Aug 10 2016 12:40 am	Sample Name:	**CCV6-160809**
Acq. Method:	DHL_3Fe.M	Misc Info:	CCV ICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 09 2016 01:04 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	167.40	ppb	1.47	200.00	90 -	110	83.7	Fail
9	Be	2	45	171.80	ppb	1.06	200.00	90 -	110	85.9	Fail
11	B	2	45	166.70	ppb	1.71	200.00	90 -	110	83.4	Fail
23	Na	1	45	5465.00	ppb	1.87	5000.00	90 -	110	109.3	
24	Mg	1	45	5136.00	ppb	1.43	5000.00	90 -	110	102.7	
27	Al	1	45	5019.00	ppb	1.02	5000.00	90 -	110	100.4	
39	K	1	45	5195.00	ppb	1.89	5000.00	90 -	110	103.9	
44	Ca	2	45	5317.00	ppb	1.95	5000.00	90 -	110	106.3	
47	Ti	1	45	198.10	ppb	2.78	200.00	90 -	110	99.1	
51	V	1	45	193.60	ppb	0.91	200.00	90 -	110	96.8	
52	Cr	1	45	196.00	ppb	1.20	200.00	90 -	110	98.0	
55	Mn	1	45	193.30	ppb	1.32	200.00	90 -	110	96.7	
56	Fe	1	72	4978.00	ppb	1.21	5000.00	90 -	110	99.6	
59	Co	1	72	203.60	ppb	0.54	200.00	90 -	110	101.8	
60	Ni	1	72	198.10	ppb	1.04	200.00	90 -	110	99.1	
63	Cu	1	72	204.00	ppb	0.67	200.00	90 -	110	102.0	
66	Zn	1	72	204.20	ppb	1.22	200.00	90 -	110	102.1	
75	As	1	72	205.10	ppb	0.48	200.00	90 -	110	102.6	
78	Se	1	72	204.60	ppb	1.97	200.00	90 -	110	102.3	
88	Sr	2	115	204.10	ppb	1.67	200.00	90 -	110	102.1	
95	Mo	2	115	187.90	ppb	1.81	200.00	90 -	110	94.0	
107	Ag	2	115	192.90	ppb	1.47	200.00	90 -	110	96.5	
111	Cd	2	115	192.80	ppb	1.10	200.00	90 -	110	96.4	
118	Sn	2	115	195.80	ppb	1.49	200.00	90 -	110	97.9	
121	Sb	2	115	193.30	ppb	1.05	200.00	90 -	110	96.7	
137	Ba	2	115	191.20	ppb	1.01	200.00	90 -	110	95.6	
205	Tl	2	209	205.90	ppb	0.44	200.00	90 -	110	103.0	
208	Pb	2	209	199.00	ppb	1.90	200.00	90 -	110	99.5	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	-56261.30	1.15	76.78	-73279.8	70 -	120		ISFail
45	Sc	1	124555.60	0.67	158070.19	78.8	70 -	120		
45	Sc	2	5296972.00	1.77	6406944.50	82.7	70 -	120		
72	Ge	1	66748.51	0.64	88651.82	75.3	70 -	120		
115	In	2	5704471.00	0.52	7384352.50	77.3	70 -	120		
209	Bi	2	4283476.00	0.74	5202967.00	82.3	70 -	120		

CCV QC Report

C:\ICPCHEM\1\DATA\16H09l01.B\133LCVL.D\133LCVL.D#

Date Acquired:	Aug 10 2016 12:52 am	Sample Name:	**LCVL6-160809**
Acq. Method:	DHL_3Fe.M	Misc Info:	LCVLICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 09 2016 01:04 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	8.36	ppb	0.41	10.00	70 -	130	83.6	
9	Be	2	45	0.93	ppb	6.23	1.00	70 -	130	92.7	
11	B	2	45	17.97	ppb	1.06	20.00	70 -	130	89.9	
23	Na	1	45	75.06	ppb	1.50	100.00	70 -	130	75.1	
24	Mg	1	45	106.10	ppb	2.21	100.00	70 -	130	106.1	
27	Al	1	45	107.20	ppb	1.50	100.00	70 -	130	107.2	
39	K	1	45	102.50	ppb	3.12	100.00	70 -	130	102.5	
44	Ca	2	45	96.05	ppb	1.13	100.00	70 -	130	96.1	
47	Ti	1	45	5.58	ppb	14.76	5.00	70 -	130	111.6	
51	V	1	45	1.01	ppb	3.86	1.00	70 -	130	100.9	
52	Cr	1	45	4.96	ppb	1.30	5.00	70 -	130	99.3	
55	Mn	1	45	5.15	ppb	2.02	5.00	70 -	130	103.0	
56	Fe	1	72	109.10	ppb	1.44	100.00	70 -	130	109.1	
59	Co	1	72	5.20	ppb	1.89	5.00	70 -	130	104.0	
60	Ni	1	72	5.19	ppb	3.60	5.00	70 -	130	103.9	
63	Cu	1	72	5.26	ppb	2.20	5.00	70 -	130	105.3	
66	Zn	1	72	5.39	ppb	4.12	5.00	70 -	130	107.7	
75	As	1	72	5.14	ppb	2.63	5.00	70 -	130	102.7	
78	Se	1	72	5.64	ppb	7.87	5.00	70 -	130	112.8	
88	Sr	2	115	5.01	ppb	0.98	5.00	70 -	130	100.2	
95	Mo	2	115	4.61	ppb	2.50	5.00	70 -	130	92.2	
107	Ag	2	115	2.02	ppb	1.23	2.00	70 -	130	100.8	
111	Cd	2	115	1.00	ppb	5.18	1.00	70 -	130	99.9	
118	Sn	2	115	5.02	ppb	0.81	5.00	70 -	130	100.5	
121	Sb	2	115	2.06	ppb	0.44	2.00	70 -	130	102.8	
137	Ba	2	115	4.84	ppb	1.77	5.00	70 -	130	96.8	
205	Tl	2	209	1.08	ppb	1.83	1.00	70 -	130	108.1	
208	Pb	2	209	1.04	ppb	3.49	1.00	70 -	130	103.6	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	-1894.92	0.81	76.78	-2468.1	70 -	120	ISFail
45	Sc	1	127512.96	1.28	158070.19	80.7	70 -	120	
45	Sc	2	5345241.50	1.84	6406944.50	83.4	70 -	120	
72	Ge	1	69017.09	0.78	88651.82	77.9	70 -	120	
115	In	2	5931265.50	0.47	7384352.50	80.3	70 -	120	
209	Bi	2	4508333.00	0.53	5202967.00	86.6	70 -	120	

CCB QC Report

C:\ICPCHEM\1\DATA\16H09l01.B\134_CCB.D\134_CCB.D#

Date Acquired:	Aug 10 2016 12:58 am	Sample Name:	**CCB6-160809**
Acq. Method:	DHL_3Fe.M	Misc Info:	CCB ICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 09 2016 01:04 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	MDL S	MDL Aq	Flag
7	Li	2	45	0.101	ppb	14.77	2.00	2.00	
9	Be	2	45	0.018	ppb	16.07	0.40	0.30	
11	B	2	45	1.904	ppb	2.17	10.00	10.00	
23	Na	1	45	-25.190	ppb	1.25	50.00	#####	
24	Mg	1	45	1.985	ppb	7.37	50.00	#####	
27	Al	1	45	12.990	ppb	11.78	50.00	10.00	FailAq
39	K	1	45	2.226	ppb	2.38	50.00	#####	
44	Ca	2	45	14.170	ppb	3.90	50.00	#####	
47	Ti	1	45	0.228	ppb	48.05	4.00	3.00	
51	V	1	45	0.067	ppb	5.49	4.00	3.00	
52	Cr	1	45	-0.014	ppb	11.68	2.00	2.00	
55	Mn	1	45	0.099	ppb	33.22	2.00	3.00	
56	Fe	1	72	2.892	ppb	10.97	50.00	30.00	
59	Co	1	72	0.042	ppb	8.22	2.00	3.00	
60	Ni	1	72	0.107	ppb	18.76	2.00	3.00	
63	Cu	1	72	0.079	ppb	7.94	2.00	2.00	
66	Zn	1	72	0.873	ppb	10.21	4.00	2.00	
75	As	1	72	-0.028	ppb	6.15	2.00	2.00	
78	Se	1	72	0.106	ppb	9.27	0.60	2.00	
88	Sr	2	115	0.136	ppb	7.78	4.00	3.00	
95	Mo	2	115	0.048	ppb	13.97	2.00	2.00	
107	Ag	2	115	0.035	ppb	31.56	0.40	1.00	
111	Cd	2	115	0.016	ppb	17.44	0.40	0.30	
118	Sn	2	115	0.106	ppb	9.34	20.00	3.00	
121	Sb	2	115	0.114	ppb	2.32	2.00	0.80	
137	Ba	2	115	0.159	ppb	6.77	2.00	3.00	
205	Tl	2	209	0.122	ppb	9.29	2.00	0.50	
208	Pb	2	209	0.043	ppb	10.14	0.40	0.30	

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	RHigh	-30.83	20.91	76.78	-40.2	70 - 120	ISFail
45	Sc	1		127231.00	1.85	158070.19	80.5	70 - 120	
45	Sc	2		5344402.50	0.65	6406944.50	83.4	70 - 120	
72	Ge	1		69252.09	1.04	88651.82	78.1	70 - 120	
115	In	2		6033401.00	0.52	7384352.50	81.7	70 - 120	
209	Bi	2		4493201.00	0.82	5202967.00	86.4	70 - 120	

ICSA QC Report

C:\ICPCHEM\1\DATA\16H09l01.B\139ICSA.D\139ICSA.D#

Date Acquired:	Aug 10 2016 01:28 am	Sample Name:	**ICSA-160809**
Acq. Method:	DHL_3Fe.M	Misc Info:	ICSAICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 09 2016 01:04 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	RL S	RL Aq	Flag
7	Li	2	45	0.070	ppb	2.00	8.00	5.00	
9	Be	2	45	0.001	ppb	34.45	0.32	0.80	
11	B	2	45	2.312	ppb	1.17	30.00	30.00	
23	Na	1	45	105200.000	ppb	1.04	#######	#######	
24	Mg	1	45	90950.000	ppb	0.26	#######	#######	
27	Al	1	45	100500.000	ppb	0.69	#######	#######	
39	K	1	45	98300.000	ppb	0.71	#######	#######	
44	Ca	2	45	93690.000	ppb	1.88	#######	#######	
47	Ti	1	45	1967.000	ppb	2.25	10.00	10.00	
51	V	1	45	0.007	ppb	5.61	10.00	10.00	
52	Cr	1	45	0.736	ppb	2.29	8.00	5.00	
55	Mn	1	45	0.784	ppb	2.89	8.00	10.00	
56	Fe	1	72	92090.000	ppb	1.07	#######	#######	
59	Co	1	72	1.251	ppb	2.39	8.00	10.00	
60	Ni	1	72	0.367	ppb	8.44	8.00	10.00	
63	Cu	1	72	2.143	ppb	4.19	8.00	10.00	
66	Zn	1	72	1.740	ppb	10.89	10.00	5.00	
75	As	1	72	0.424	ppb	2.29	4.00	5.00	
78	Se	1	72	0.405	ppb	4.88	2.00	5.00	
88	Sr	2	115	1.102	ppb	1.24	10.00	10.00	
95	Mo	2	115	1840.000	ppb	1.36	8.00	5.00	
107	Ag	2	115	0.095	ppb	9.31	0.80	2.00	
111	Cd	2	115	0.358	ppb	4.48	1.20	1.00	
118	Sn	2	115	0.112	ppb	11.93	10.00	10.00	
121	Sb	2	115	0.124	ppb	4.55	4.00	2.50	
137	Ba	2	115	0.485	ppb	6.26	8.00	10.00	
205	Tl	2	209	0.030	ppb	4.63	4.00	1.50	
208	Pb	2	209	0.143	ppb	5.94	1.20	1.00	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-4.44	104.01	76.78	-5.8	70 - 120	ISFail
45	Sc	1	119130.96	0.54	158070.19	75.4	70 - 120	
45	Sc	2	5411480.50	1.58	6406944.50	84.5	70 - 120	
72	Ge	1	63381.42	0.44	88651.82	71.5	70 - 120	
115	In	2	6052545.50	0.79	7384352.50	82.0	70 - 120	
209	Bi	2	3898169.50	0.91	5202967.00	74.9	70 - 120	

ICS-AB QC Report

C:\ICPCHEM\1\DATA\16H09l01.B\140ICSB.D\140ICSB.D#

Date Acquired:	Aug 10 2016 01:34 am	Sample Name:	**ICSAB-160809**
Acq. Method:	DHL_3Fe.M	Misc Info:	ICSBICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 09 2016 01:04 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)			Flag
7	Li	2	45	0.08	ppb	8.76	---	80 -		120	
9	Be	2	45	0.00	ppb	5.88	---	80 -		120	
11	B	2	45	2.18	ppb	2.39	---	80 -		120	
23	Na	1	45	99220.00	ppb	0.75	100000.00	80 -		120	
24	Mg	1	45	91000.00	ppb	2.16	100000.00	80 -		120	
27	Al	1	45	96240.00	ppb	1.82	100000.00	80 -		120	
39	K	1	45	96230.00	ppb	1.17	100000.00	80 -		120	
44	Ca	2	45	94120.00	ppb	2.58	100000.00	80 -		120	
47	Ti	1	45	1933.00	ppb	2.15	---	80 -		120	
51	V	1	45	39.34	ppb	1.11	40.00	80 -		120	
52	Cr	1	45	20.35	ppb	2.07	20.00	80 -		120	
55	Mn	1	45	18.52	ppb	1.26	20.00	80 -		120	
56	Fe	1	72	90510.00	ppb	1.66	100000.00	80 -		120	
59	Co	1	72	39.63	ppb	1.40	40.00	80 -		120	
60	Ni	1	72	36.01	ppb	2.48	40.00	80 -		120	
63	Cu	1	72	19.40	ppb	2.06	20.00	80 -		120	
66	Zn	1	72	17.91	ppb	1.30	20.00	80 -		120	
75	As	1	72	19.95	ppb	1.53	20.00	80 -		120	
78	Se	1	72	18.94	ppb	4.72	20.00	80 -		120	
88	Sr	2	115	1.26	ppb	1.03	---	80 -		120	
95	Mo	2	115	1869.00	ppb	1.21	---	80 -		120	
107	Ag	2	115	17.30	ppb	2.01	20.00	80 -		120	
111	Cd	2	115	8.66	ppb	2.03	10.00	80 -		120	
118	Sn	2	115	0.32	ppb	6.45	---	80 -		120	
121	Sb	2	115	0.06	ppb	8.76	---	80 -		120	
137	Ba	2	115	0.46	ppb	4.50	---	80 -		120	
205	Tl	2	209	0.03	ppb	1.19	---	80 -		120	
208	Pb	2	209	0.14	ppb	4.34	---	80 -		120	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	-13.32	82.49	76.78	-17.4	70 -		120	ISFail
45	Sc	1	114294.10	0.74	158070.19	72.3	70 -		120	
45	Sc	2	5913222.00	2.49	6406944.50	92.3	70 -		120	
72	Ge	1	62531.31	0.48	88651.82	70.5	70 -		120	
115	In	2	6403232.00	2.00	7384352.50	86.7	70 -		120	
209	Bi	2	3877124.00	1.53	5202967.00	74.5	70 -		120	

Sample QC Report

C:\ICPCHEM\1\DATA\16H09l01.B\146SMPL.D\146SMPL.D#

Date Acquired:	Aug 10 2016 02:10 am	Sample Name:	**1607314-07A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TWDOD1
Operator:	KL	Bench Diln:	1
Last Cal. Update:	Aug 09 2016 01:04 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	0.090	ppb	#REF!	5.13	2000.00	ND
9	Be	2	45	-0.009	ppb	#REF!	21.08	2000.00	ND
11	B	2	45	25.340	ppb	#REF!	4.61	2000.00	J
23	Na	1	45	58.310	ppb	#REF!	1.08	25000.00	ND
24	Mg	1	45	7.278	ppb	#REF!	2.90	25000.00	ND
27	Al	1	45	32.370	ppb	#REF!	1.36	10000.00	>RL
39	K	1	45	14.610	ppb	#REF!	2.55	25000.00	ND
44	Ca	2	45	63.000	ppb	#REF!	1.65	25000.00	ND
47	Ti	1	45	0.270	ppb	#REF!	10.83	2000.00	ND
51	V	1	45	0.003	ppb	#REF!	7.04	2000.00	ND
52	Cr	1	45	-0.013	ppb	#REF!	9.34	2000.00	ND
55	Mn	1	45	0.047	ppb	#REF!	13.73	2000.00	ND
56	Fe	1	72	4.030	ppb	#REF!	3.25	10000.00	ND
59	Co	1	72	-0.001	ppb	#REF!	4.68	2000.00	ND
60	Ni	1	72	0.049	ppb	#REF!	14.70	2000.00	ND
63	Cu	1	72	0.697	ppb	#REF!	4.38	2000.00	ND
66	Zn	1	72	2.802	ppb	#REF!	6.30	2000.00	J
75	As	1	72	0.082	ppb	#REF!	2.98	2000.00	ND
78	Se	1	72	0.021	ppb	#REF!	21.21	2000.00	ND
88	Sr	2	115	0.497	ppb	#REF!	1.16	2000.00	ND
95	Mo	2	115	0.035	ppb	#REF!	10.10	2000.00	ND
107	Ag	2	115	0.009	ppb	#REF!	37.29	500.00	ND
111	Cd	2	115	0.007	ppb	#REF!	38.77	2000.00	ND
118	Sn	2	115	0.029	ppb	#REF!	9.89	2000.00	ND
121	Sb	2	115	0.014	ppb	#REF!	21.01	500.00	ND
137	Ba	2	115	0.118	ppb	#REF!	12.08	2000.00	ND
205	Tl	2	209	0.006	ppb	#REF!	6.32	2000.00	ND
208	Pb	2	209	0.053	ppb	#REF!	6.13	2000.00	ND

ISTD Elements

Element			CPS Mean	RSD(%)		Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-20.10	31.07	RHigh	76.78	-26.2	70 - 120	ISFail
45	Sc	1	136668.11	2.26		158070.19	86.5	70 - 120	
45	Sc	2	7298038.00	2.99		6406944.50	113.9	70 - 120	
72	Ge	1	75336.83	0.61		88651.82	85.0	70 - 120	
115	In	2	7171310.50	1.58		7384352.50	97.1	70 - 120	
209	Bi	2	4636989.50	1.57		5202967.00	89.1	70 - 120	

CCV QC Report

C:\ICPCHEM\1\DATA\16H09l01.B\150CCV1.D\150CCV1.D#

Date Acquired:	Aug 10 2016 02:34 am	Sample Name:	**CCV7-160809**
Acq. Method:	DHL_3Fe.M	Misc Info:	CCV ICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 09 2016 01:04 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	211.40	ppb	1.98	200.00	90 -	110	105.7	
9	Be	2	45	193.30	ppb	2.54	200.00	90 -	110	96.7	
11	B	2	45	181.50	ppb	2.97	200.00	90 -	110	90.8	
23	Na	1	45	5794.00	ppb	0.74	5000.00	90 -	110	115.9	Fail
24	Mg	1	45	5243.00	ppb	0.99	5000.00	90 -	110	104.9	
27	Al	1	45	4782.00	ppb	0.93	5000.00	90 -	110	95.6	
39	K	1	45	5111.00	ppb	0.66	5000.00	90 -	110	102.2	
44	Ca	2	45	5330.00	ppb	2.78	5000.00	90 -	110	106.6	
47	Ti	1	45	195.70	ppb	1.93	200.00	90 -	110	97.9	
51	V	1	45	204.60	ppb	1.30	200.00	90 -	110	102.3	
52	Cr	1	45	207.40	ppb	0.93	200.00	90 -	110	103.7	
55	Mn	1	45	194.10	ppb	0.54	200.00	90 -	110	97.1	
56	Fe	1	72	4961.00	ppb	0.58	5000.00	90 -	110	99.2	
59	Co	1	72	211.40	ppb	0.42	200.00	90 -	110	105.7	
60	Ni	1	72	207.80	ppb	0.64	200.00	90 -	110	103.9	
63	Cu	1	72	212.40	ppb	0.87	200.00	90 -	110	106.2	
66	Zn	1	72	203.80	ppb	0.83	200.00	90 -	110	101.9	
75	As	1	72	206.40	ppb	0.19	200.00	90 -	110	103.2	
78	Se	1	72	193.90	ppb	1.18	200.00	90 -	110	97.0	
88	Sr	2	115	220.10	ppb	2.20	200.00	90 -	110	110.1	Fail
95	Mo	2	115	198.40	ppb	2.02	200.00	90 -	110	99.2	
107	Ag	2	115	204.10	ppb	2.60	200.00	90 -	110	102.1	
111	Cd	2	115	197.30	ppb	1.79	200.00	90 -	110	98.7	
118	Sn	2	115	193.70	ppb	2.33	200.00	90 -	110	96.9	
121	Sb	2	115	189.10	ppb	1.94	200.00	90 -	110	94.6	
137	Ba	2	115	189.90	ppb	2.75	200.00	90 -	110	95.0	
205	Tl	2	209	207.50	ppb	1.24	200.00	90 -	110	103.8	
208	Pb	2	209	201.00	ppb	1.74	200.00	90 -	110	100.5	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	-82304.90	2.29	76.78	-107201.3	70 -	120		ISFail
45	Sc	1	125201.70	0.89	158070.19	79.2	70 -	120		
45	Sc	2	6585617.50	2.74	6406944.50	102.8	70 -	120		
72	Ge	1	69514.50	0.34	88651.82	78.4	70 -	120		
115	In	2	6265898.00	2.25	7384352.50	84.9	70 -	120		
209	Bi	2	4283931.00	1.41	5202967.00	82.3	70 -	120		

CCV QC Report

C:\ICPCHEM\1\DATA\16H09l01.B\152LCVL.D\152LCVL.D#

Date Acquired:	Aug 10 2016 02:46 am	Sample Name:	**LCVL7-160809**
Acq. Method:	DHL_3Fe.M	Misc Info:	LCVLICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 09 2016 01:04 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	10.55	ppb	1.67	10.00	70 -	130	105.5	
9	Be	2	45	1.02	ppb	5.20	1.00	70 -	130	102.4	
11	B	2	45	19.50	ppb	2.95	20.00	70 -	130	97.5	
23	Na	1	45	85.41	ppb	0.67	100.00	70 -	130	85.4	
24	Mg	1	45	105.90	ppb	2.49	100.00	70 -	130	105.9	
27	Al	1	45	102.10	ppb	5.06	100.00	70 -	130	102.1	
39	K	1	45	106.40	ppb	0.78	100.00	70 -	130	106.4	
44	Ca	2	45	97.15	ppb	2.11	100.00	70 -	130	97.2	
47	Ti	1	45	4.57	ppb	8.81	5.00	70 -	130	91.5	
51	V	1	45	1.08	ppb	5.50	1.00	70 -	130	108.1	
52	Cr	1	45	5.17	ppb	1.70	5.00	70 -	130	103.3	
55	Mn	1	45	4.99	ppb	1.78	5.00	70 -	130	99.7	
56	Fe	1	72	108.10	ppb	1.80	100.00	70 -	130	108.1	
59	Co	1	72	5.38	ppb	1.05	5.00	70 -	130	107.6	
60	Ni	1	72	5.19	ppb	3.22	5.00	70 -	130	103.9	
63	Cu	1	72	5.42	ppb	0.84	5.00	70 -	130	108.5	
66	Zn	1	72	5.42	ppb	1.94	5.00	70 -	130	108.3	
75	As	1	72	5.28	ppb	2.23	5.00	70 -	130	105.5	
78	Se	1	72	5.09	ppb	9.45	5.00	70 -	130	101.8	
88	Sr	2	115	5.36	ppb	2.63	5.00	70 -	130	107.3	
95	Mo	2	115	4.99	ppb	2.38	5.00	70 -	130	99.8	
107	Ag	2	115	2.12	ppb	0.86	2.00	70 -	130	105.9	
111	Cd	2	115	1.07	ppb	10.42	1.00	70 -	130	106.5	
118	Sn	2	115	4.91	ppb	2.17	5.00	70 -	130	98.2	
121	Sb	2	115	1.99	ppb	3.25	2.00	70 -	130	99.4	
137	Ba	2	115	4.87	ppb	2.38	5.00	70 -	130	97.4	
205	Tl	2	209	1.07	ppb	2.25	1.00	70 -	130	106.7	
208	Pb	2	209	1.05	ppb	2.01	1.00	70 -	130	105.0	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	-2645.24	4.55	76.78	-3445.4	70 -	120	ISFail
45	Sc	1	131958.09	1.68	158070.19	83.5	70 -	120	
45	Sc	2	6630638.50	2.20	6406944.50	103.5	70 -	120	
72	Ge	1	72498.49	1.39	88651.82	81.8	70 -	120	
115	In	2	6417149.50	1.31	7384352.50	86.9	70 -	120	
209	Bi	2	4487306.00	0.69	5202967.00	86.2	70 -	120	

CCB QC Report

C:\ICPCHEM\1\DATA\16H09l01.B\153_CCB.D\153_CCB.D#

Date Acquired:	Aug 10 2016 02:52 am	Sample Name:	**CCB7-160809**
Acq. Method:	DHL_3Fe.M	Misc Info:	CCB ICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 09 2016 01:04 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	MDL S	MDL Aq	Flag
7	Li	2	45	0.099	ppb	4.55	2.00	2.00	
9	Be	2	45	0.028	ppb	6.74	0.40	0.30	
11	B	2	45	1.824	ppb	2.26	10.00	10.00	
23	Na	1	45	-17.230	ppb	0.69	50.00	#####	
24	Mg	1	45	2.846	ppb	8.80	50.00	#####	
27	Al	1	45	13.190	ppb	2.07	50.00	10.00	FailAq
39	K	1	45	4.196	ppb	0.71	50.00	#####	
44	Ca	2	45	15.510	ppb	3.58	50.00	#####	
47	Ti	1	45	0.361	ppb	63.82	4.00	3.00	
51	V	1	45	0.044	ppb	4.14	4.00	3.00	
52	Cr	1	45	-0.002	ppb	8.89	2.00	2.00	
55	Mn	1	45	0.122	ppb	8.00	2.00	3.00	
56	Fe	1	72	4.111	ppb	5.89	50.00	30.00	
59	Co	1	72	0.045	ppb	16.88	2.00	3.00	
60	Ni	1	72	0.140	ppb	11.71	2.00	3.00	
63	Cu	1	72	0.128	ppb	3.06	2.00	2.00	
66	Zn	1	72	0.872	ppb	7.66	4.00	2.00	
75	As	1	72	0.128	ppb	1.55	2.00	2.00	
78	Se	1	72	-0.016	ppb	8.21	0.60	2.00	
88	Sr	2	115	0.190	ppb	4.02	4.00	3.00	
95	Mo	2	115	0.077	ppb	2.00	2.00	2.00	
107	Ag	2	115	0.037	ppb	12.69	0.40	1.00	
111	Cd	2	115	0.035	ppb	4.31	0.40	0.30	
118	Sn	2	115	0.078	ppb	10.84	20.00	3.00	
121	Sb	2	115	0.058	ppb	13.12	2.00	0.80	
137	Ba	2	115	0.170	ppb	3.65	2.00	3.00	
205	Tl	2	209	0.083	ppb	5.52	2.00	0.50	
208	Pb	2	209	0.034	ppb	6.00	0.40	0.30	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-43.63	4.42	76.78	-56.8	70 - 120	ISFail
45	Sc	1	128466.02	0.42	158070.19	81.3	70 - 120	
45	Sc	2	6564520.50	2.58	6406944.50	102.5	70 - 120	
72	Ge	1	71235.80	1.58	88651.82	80.4	70 - 120	
115	In	2	6498961.00	0.94	7384352.50	88.0	70 - 120	
209	Bi	2	4515668.00	1.20	5202967.00	86.8	70 - 120	

ICP-MS3_160810B
For

DHL Work Order
1607314

Lab Data Review Check List
EPA Method 6020 / 6020A / 200.8 - Trace Metals by ICP-MS

PROJECT AND BATCH NUMBERS ARE LISTED ON THE RUN LOG	Run ID: ICP-MS3_160810B SOP: MET-ICPMS-01			
Review Item	**Yes**	**No**	**N/A**	**2nd Level Review**
Data Folder Contents 1. Is the Prep Batch Report included? ***Check the Prep Start/End Dates, Sample Amounts, Bottle #s***	X			
2. Are the reagents and spikes listed on the Prep Batch Report current with a valid expiration date? ***All standard/QC sample preparations shall be documented in LIMS***	X			x
3. Is the Run Log and instrument sequence included? ***Check the Test Code, Sample Type, Batch ID, and Analysis Date/Time***	X			

Daily Demonstration of Performance

QC items that do not meet method/SOP/project requirements will be described on the run log. All variances that impact data quality will be described in the Variance/Comment Section on page 2.

Review Item	Frequency	Limits	Pass	Fail (List Batch/Sample) **See Run Log**		2nd Level Review
Tune	Before ICAL	RSD ≤ 5% / Peak Width@10% <0.9amu	X			
P/A Factor	Before ICAL	Increasing trend	X			x
Initial Calibration Curve (ICAL) (Blank + 4 Standards)	Prior to samples and when ICV fails	R ≥ 0.995 (DoD) R ≥ 0.998 (6020A)	X			
Review Item	**Frequency**	**Limits**	**Pass**	**Fail**	**N/A**	**Review**
ICSA (N/A for Method 200.8+U)	After calibration & every 12 hours	< RL (except Mn & Zn)	X			x
ICSAB (N/A for Method 200.8+U)	After calibration & every 12 hours	80-120% (correct for ICSA result)	X			
Note: LCVLs and ICSA/ICSAB are N/A for Method 200.8 or project-specific exceptions						
ICV (Second Source Verification)	After ICAL	90-110%	X			x
ICB	After calibration	< MDL	X			
CCV	Every 10 samples	90-110%	X			
CCB	Every 10 samples	< MDL (ALL + DoD)	X			
Internal Standards	Every sample and QC sample	> 70% (6020A) 60-125% (200.8) 30-120% (DoD)	X			
LCVL (6020A test code)	After ICAL, every 10 samples and end of run	70-130%			X	
LCVL (All metals test codes except 200.8/6020A)	After ICAL and end of run	70-130%	X			
Method Blank (MB)	Every Batch	< MDL / <½ RL (DoD) or <1/10 the sample/reg limit	X			
Filter/TCLP/SPLP Blank	Filter-Dissolved only TCLP / SPLP	< MDL / <½ RL (DoD) or <1/10 the sample/reg limit			X	
Lab Control Sample (LCS)	Every Batch	80-120%	X			
Lab Control Sample Dup (LCSD)	Every Batch	80-120%	X			
LCSD - RPD	Every LCS/LCSD	15 (H2O) / 20 (Soil)	X			
Matrix Spike/ Matrix Spike Duplicate (MS/MSD)	Every Batch	80-120%			X	
MSD - RPD	Every MS/MSD	15 (H2O) / 20 (Soil)			X	
Dilution Test (SD) - RPD	Every Batch	10	X			
Post Digestion Spike (PDS)	Every Batch	75-125 (80-120 (6020A)	X			

Lab Data Review Check List
EPA Method 6020 / 6020A / 200.8 - Trace Metals by ICP-MS

Review Item	Criteria	Yes	No	N/A	2nd Level Review
Sample Analysis 1. Are all sample hold times met?	6 months	X			x
2. Are all samples with concentrations > the highest standard used for calibration diluted and reanalyzed?	All results > high point of ICAL must be diluted	X			
3. Are ALL reported analytes and reported results > MDL highlighted by the analyst?		X	**Confirm with analyst if LIMS result does not match Labcore**		

VARIANCE REPORT

QC items that do not meet method/SOP/project requirements will be described on the run log. All variances that impact data quality will be described in this section.

NON-CONFORMANCES / VARIANCE	Criteria	Yes	No	N/A	2nd Level
1. Are all non-conformances and corrective actions included and noted?	All deviations from the method and SOP that affect data quality	X			x
2. Does the variance require approval by the Technical Director/General Manager/QA Manager?		X			

TECHNICAL DIRECTOR / QA MANAGER APPROVAL
SIGNATURE AND DATE STAMP:

Description and Corrective Actions of QC items that do not meet method/SOP/project requirements:

****INCLUDE VARIANCE ITEM / REASON / CORRECTIVE ACTION / IMPACT ON DATA****

VARIANCE ITEM	REASON	CORRECTIVE ACTION
__ CCV out of control (± 10%)	__ Carryover from previous run	__ Reanalyze QC to confirm
__ CCB out of control (> MDL / >½ RL)	__ Cross contamination	__ Recalibrate
__ MB out of control (> RL / >½ RL)	__ Lab Artifact	__ Reprep/Reanalyze sample
__ LCS __ LCSD out of control (± 20%)	__ Prep Spike error (describe)	__ Reprep/Reanalyze Batch
__ MS __ MSD out of control (± 20%)	__ Matrix Effect	__ Reanalyze Batch/Sample/QC
__ RPD out of control for MS/MSD (15/25)	__ High Levels of Target Metals	__ Verify reagents are clean
__ Internal Standard(s) out of control (see Method)	__ Insufficient sample for QC	__ Reanalyze sample to confirm
__ No MS/MSD prepared - LCS/LCSD used instead	__ Digestion/Prep Error	__ Sample results ND w/ dilution
__ Missing QC (other than MS/MSD)	__ Analytical Error	__ Client notified and approved
__ QC sample(s) was mis-spiked	__ Client Request	__ Flag Data/ Case Narative
__ ICSA/ICSAB missing or out of control (± 20%)		__ Accept data
__ LCVL out of control (± 30%)		__ Cal Std high and sample ND
__ Other (describe below)	__ Other (describe below)	__ Other (describe below)

General Comments and Impact on Data:

Analyst: Cassie Van Dyke Date of Completion: 08/11/2016

Second-Level Review: Janice Whitt Date Stamp: 8/15/2016

REVIEWED BY
By Janice Whitt at 11:19:28 AM, 8/15/2016

DHL Analytical, Inc.

Run ID: **ICP-MS3_160810B** **Run No.:** 87549

Analytical Run Date: 8/10/2016 **InstrumentID:** ICP-MS3

Analyst: Cassie Van Dyke

SampID	DF	TestCode	SampType	Batch ID	Analysis Date/Time	Q	Comments
BLANK STD 1	1	ICPMS_TWDOD	CAL	R87549	8/10/2016 11:23:00 AM		
L2-160810	1	ICPMS_TWDOD	CAL	R87549	8/10/2016 11:29:00 AM		
L-160810	1	ICPMS_TWDOD	CAL	R87549	8/10/2016 11:35:00 AM		
10X-160810	1	ICPMS_TWDOD	CAL	R87549	8/10/2016 11:41:00 AM		
5X-160810	1	ICPMS_TWDOD	CAL	R87549	8/10/2016 11:47:00 AM		
2X-160810	1	ICPMS_TWDOD	CAL	R87549	8/10/2016 11:53:00 AM		
H-160810	1	ICPMS_TWDOD	CAL	R87549	8/10/2016 11:59:00 AM		
H2-160810	1	ICPMS_TWDOD	CAL	R87549	8/10/2016 12:05:00 PM		
ICSA-160810	1	ICPMS_TWDOD	ICSA	R87549	8/10/2016 12:23:00 PM		
ICSAB-160810	1	ICPMS_TWDOD	ICSB	R87549	8/10/2016 12:29:00 PM		
ICV1-160810	1	ICPMS_TWDOD	ICV	R87549	8/10/2016 12:47:00 PM		
ICV1-160810	1	ICPMS_TWDOD	ICV	R87549	8/10/2016 12:59:00 PM		ICV1 reran for missed analytes from another work order. Pb passes in both runs.
ILCVL-160810	1	ICPMS_TWDOD	LCVL	R87549	8/10/2016 1:05:00 PM		
ICB1-160810	1	ICPMS_TWDOD	ICB	R87549	8/10/2016 1:11:00 PM		
1607294-09A	5	ICPMS_TSDOD1	SAMP	76670	8/10/2016 3:09:00 PM		
1607294-09A SD	25	ICPMS_TSDOD1	SD	76670	8/10/2016 3:15:00 PM		
1607294-09A PDS	5	ICPMS_TSDOD1	PDS	76670	8/10/2016 3:21:00 PM		
1607294-09A MS	5	ICPMS_TSDOD1	MS	76670	8/10/2016 3:27:00 PM		
1607294-09A MSD	5	ICPMS_TSDOD1	MSD	76670	8/10/2016 3:32:00 PM		S flag for Pb (High); R flag Pb; Verified from previous run.
CCV1-160810	1	ICPMS_TWDOD	CCV	R87549	8/10/2016 3:38:00 PM		
LCVL1-160810	1	ICPMS_TWDOD	LCVL	R87549	8/10/2016 3:50:00 PM		
CCB1-160810	1	ICPMS_TWDOD	CCB	R87549	8/10/2016 3:56:00 PM		
MB-76690	5	ICPMS_TSDOD1	MBLK	76690	8/10/2016 4:02:00 PM		
LCS-76690	5	ICPMS_TSDOD1	LCS	76690	8/10/2016 4:08:00 PM		
LCSD-76690	5	ICPMS_TSDOD1	LCSD	76690	8/10/2016 4:14:00 PM		
1607314-03A	5	ICPMS_TSDOD1	SAMP	76690	8/10/2016 4:26:00 PM		
1607314-03A SD	25	ICPMS_TSDOD1	SD	76690	8/10/2016 4:31:00 PM		
1607294-69A	5	ICPMS_TSDOD1	SAMP	76690	8/10/2016 4:56:00 PM		Rounds. jw 8/15/2016
1607294-70A	5	ICPMS_TSDOD1	SAMP	76690	8/10/2016 5:02:00 PM		~~S flag for INST Sc (High); Does not affect Pb.~~

Std ID	Std Name	Type	Exp. Date
MET-CCV-160804	ICPMS CCV 200/5000 PPB		02/02/2017
MET-H2CAL-1608	ICPMS High Cal2 2000ppb std 8		02/02/2017
MET-HCAL-16080	ICPMS High Cal 500ppb/10ppm s		02/02/2017
MET-ICV-160804	ICPMS ICV 100 ppb		02/02/2017
MET-IS-160511	INTERNAL STANDARD 1 PPM		11/09/2016
MET-L2CAL-16080	ICPMS Low Cal2 1/20ppb std 2		02/02/2017
MET-LCAL-160804	ICPMS Low Cal 10/200ppb std 3		02/02/2017
MET-LCAL10X-16	ICPMS Low Cal 10/200ppb std 4		02/02/2017
MET-LCAL5X-160	ICPMS Low Cal 10/200ppb std 5		02/02/2017
MET-LCVLSPIKE-	LCVL METALS SPIKE (100/500		11/07/2016
MET-MCAL-16080	ICPMS Mid Cal 250/5000ppb std		02/02/2017
MET-PA-160421	ICPMS PA FACTOR SOLUTION		10/20/2016
MET-PDS-160701-	10 PPM Ag+Sb PDS		01/01/2017
MET-PDS-160701-	10 PPM CUSTOM PDS SOLUTI		01/01/2017
MET-PDS-160701-	250 PPM Naturals+Al+Fe PDS		07/01/2017

Run ID: ICP-MS3_160810B **Run No.:** 87549

1607294-71A	5	ICPMS_TSDOD1	SAMP	76690	8/10/2016 5:08:00 PM		
1607294-72A	5	ICPMS_TSDOD1	SAMP	76690	8/10/2016 5:13:00 PM		
1607294-73A	5	ICPMS_TSDOD1	SAMP	76690	8/10/2016 5:19:00 PM		
1607294-74A	5	ICPMS_TSDOD1	SAMP	76690	8/10/2016 5:31:00 PM		
1607294-75A	5	ICPMS_TSDOD1	SAMP	76690	8/10/2016 5:37:00 PM		
1607314-01A	5	ICPMS_TSDOD1	SAMP	76690	8/10/2016 5:43:00 PM		
1607314-02A	5	ICPMS_TSDOD1	SAMP	76690	8/10/2016 5:49:00 PM		
1607314-03A PDS	5	ICPMS_TSDOD1	PDS	76690	8/10/2016 5:55:00 PM		
1607314-03A MS	5	ICPMS_TSDOD1	MS	76690	8/10/2016 6:00:00 PM		
1607314-03A MSD	5	ICPMS_TSDOD1	MSD	76690	8/10/2016 6:06:00 PM		
CCV2-160810	1	ICPMS_TWDOD	CCV	R87549	8/10/2016 6:12:00 PM		
LCVL2-160810	1	ICPMS_TWDOD	LCVL	R87549	8/10/2016 6:24:00 PM		
CCB2-160810	1	ICPMS_TWDOD	CCB	R87549	8/10/2016 6:30:00 PM		
1607314-04A	5	ICPMS_TSDOD1	SAMP	76690	8/10/2016 6:36:00 PM		
1607314-05A	5	ICPMS_TSDOD1	SAMP	76690	8/10/2016 6:42:00 PM		
1607314-06A	5	ICPMS_TSDOD1	SAMP	76690	8/10/2016 6:48:00 PM		
1607317-01A	5	ICPMS_TSDOD1	SAMP	76690	8/10/2016 6:54:00 PM		
1607317-02A	5	ICPMS_TSDOD1	SAMP	76690	8/10/2016 6:59:00 PM		
1607317-03A	5	ICPMS_TSDOD1	SAMP	76690	8/10/2016 7:11:00 PM		
1607317-04A	5	ICPMS_TSDOD1	SAMP	76690	8/10/2016 7:17:00 PM		
1607317-05A	5	ICPMS_TSDOD1	SAMP	76690	8/10/2016 7:23:00 PM		
1607317-06A	5	ICPMS_TSDOD1	SAMP	76690	8/10/2016 7:29:00 PM		
1607317-07A	5	ICPMS_TSDOD1	SAMP	76690	8/10/2016 7:35:00 PM		
CCV3-160810	1	ICPMS_TWDOD	CCV	R87549	8/10/2016 7:41:00 PM		
LCVL3-160810	1	ICPMS_TWDOD	LCVL	R87549	8/10/2016 7:53:00 PM		
CCB3-160810	1	ICPMS_TWDOD	CCB	R87549	8/10/2016 7:59:00 PM		
MB-76716	5	ICPMS_TSDOD1	MBLK	76716	8/10/2016 8:05:00 PM		
LCS-76716	5	ICPMS_TSDOD1	LCS	76716	8/10/2016 8:11:00 PM		
LCSD-76716	5	ICPMS_TSDOD1	LCSD	76716	8/10/2016 8:17:00 PM		
1607317-09A	5	ICPMS_TSDOD1	SAMP	76716	8/10/2016 8:30:00 PM		
1607317-09A SD	25	ICPMS_TSDOD1	SD	76716	8/10/2016 8:35:00 PM		
1607317-08A	5	ICPMS_TSDOD1	SAMP	76716	8/10/2016 8:41:00 PM		
1607317-10A	5	ICPMS_TSDOD1	SAMP	76716	8/10/2016 8:47:00 PM		
1607317-11A	5	ICPMS_TSDOD1	SAMP	76716	8/10/2016 8:53:00 PM		
1607317-12A	5	ICPMS_TSDOD1	SAMP	76716	8/10/2016 8:59:00 PM		

Std ID	Std Name	Type	Exp. Date
MET-CCV-160804	ICPMS CCV 200/5000 PPB		02/02/2017
MET-H2CAL-1608	ICPMS High Cal2 2000ppb std 8		02/02/2017
MET-HCAL-16080	ICPMS High Cal 500ppb/10ppm s		02/02/2017
MET-ICV-160804	ICPMS ICV 100 ppb		02/02/2017
MET-IS-160511	INTERNAL STANDARD 1 PPM		11/09/2016
MET-L2CAL-16080	ICPMS Low Cal2 1/20ppb std 2		02/02/2017
MET-LCAL-160804	ICPMS Low Cal 10/200ppb std 3		02/02/2017
MET-LCAL10X-16	ICPMS Low Cal 10/200ppb std 4		02/02/2017
MET-LCAL5X-160	ICPMS Low Cal 10/200ppb std 5		02/02/2017
MET-LCVLSPIKE-	LCVL METALS SPIKE (100/500		11/07/2016
MET-MCAL-16080	ICPMS Mid Cal 250/5000ppb std		02/02/2017
MET-PA-160421	ICPMS PA FACTOR SOLUTION		10/20/2016
MET-PDS-160701-	10 PPM Ag+Sb PDS		01/01/2017
MET-PDS-160701-	10 PPM CUSTOM PDS SOLUTI		01/01/2017
MET-PDS-160701-	250 PPM Naturals+Al+Fe PDS		07/01/2017

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Run ID: ICP-MS3_160810B **Run No.:** 87549

1607317-14A	5	ICPMS_TSDOD1	SAMP	76716	8/10/2016 9:05:00 PM		
1607317-15A	5	ICPMS_TSDOD1	SAMP	76716	8/10/2016 9:17:00 PM		
1607317-16A	5	ICPMS_TSDOD1	SAMP	76716	8/10/2016 9:23:00 PM		
1607317-17A	5	ICPMS_TSDOD1	SAMP	76716	8/10/2016 9:29:00 PM		
1607317-18A	5	ICPMS_TSDOD1	SAMP	76716	8/10/2016 9:35:00 PM		
1607317-09A PDS	5	ICPMS_TSDOD1	PDS	76716	8/10/2016 9:41:00 PM		
1607317-09A MS	5	ICPMS_TSDOD1	MS	76716	8/10/2016 9:46:00 PM		S flag for Pb (High).
1607317-09A MSD	5	ICPMS_TSDOD1	MSD	76716	8/10/2016 9:52:00 PM		S flag for Pb (High).
CCV4-160810	1	ICPMS_TWDOD	CCV	R87549	8/10/2016 9:58:00 PM		
LCVL4-160810	1	ICPMS_TWDOD	LCVL	R87549	8/10/2016 10:10:00 PM		
CCB4-160810	1	ICPMS_TWDOD	CCB	R87549	8/10/2016 10:17:00 PM		
1607317-19A	5	ICPMS_TSDOD1	SAMP	76716	8/10/2016 10:23:00 PM		
1607317-20A	5	ICPMS_TSDOD1	SAMP	76716	8/10/2016 10:29:00 PM		
1607317-21A	5	ICPMS_TSDOD1	SAMP	76716	8/10/2016 10:34:00 PM		
1607317-22A	5	ICPMS_TSDOD1	SAMP	76716	8/10/2016 10:40:00 PM		
1607317-23A	5	ICPMS_TSDOD1	SAMP	76716	8/10/2016 10:46:00 PM		
1607317-24A	5	ICPMS_TSDOD1	SAMP	76716	8/10/2016 10:58:00 PM		
1607317-25A	5	ICPMS_TSDOD1	SAMP	76716	8/10/2016 11:04:00 PM		
1607317-28A	5	ICPMS_TSDOD1	SAMP	76716	8/10/2016 11:10:00 PM		
1607317-29A	5	ICPMS_TSDOD1	SAMP	76716	8/10/2016 11:16:00 PM		
1607317-30A	5	ICPMS_TSDOD1	SAMP	76716	8/10/2016 11:22:00 PM		
CCV5-160810	1	ICPMS_TWDOD	CCV	R87549	8/10/2016 11:28:00 PM		
LCVL5-160810	1	ICPMS_TWDOD	LCVL	R87549	8/10/2016 11:40:00 PM		
CCB5-160810	1	ICPMS_TWDOD	CCB	R87549	8/10/2016 11:46:00 PM		
MB-76717	5	ICPMS_TSDOD1	MBLK	76717	8/10/2016 11:52:00 PM		
LCS-76717	5	ICPMS_TSDOD1	LCS	76717	8/10/2016 11:58:00 PM		
LCSD-76717	5	ICPMS_TSDOD1	LCSD	76717	8/11/2016 12:04:00 AM		
1607317-27A	5	ICPMS_TSDOD1	SAMP	76717	8/11/2016 12:17:00 AM		DNR - SD misprepared. See rerun of QC.
1607317-27A SD	25	ICPMS_TSDOD1	SD	76717	8/11/2016 12:23:00 AM		DNR
1607317-31A	5	ICPMS_TSDOD1	SAMP	76717	8/11/2016 12:29:00 AM		
ICSA-160810	1	ICPMS_TWDOD	ICSA	R87549	8/11/2016 12:35:00 AM		
ICSAB-160810	1	ICPMS_TWDOD	ICSB	R87549	8/11/2016 12:41:00 AM		
1607317-32A	5	ICPMS_TSDOD1	SAMP	76717	8/11/2016 12:59:00 AM		
1607317-33A	5	ICPMS_TSDOD1	SAMP	76717	8/11/2016 1:05:00 AM		
1607317-34A	5	ICPMS_TSDOD1	SAMP	76717	8/11/2016 1:11:00 AM		

Std ID	Std Name	Type	Exp. Date
MET-CCV-160804	ICPMS CCV 200/5000 PPB		02/02/2017
MET-H2CAL-1608	ICPMS High Cal2 2000ppb std 8		02/02/2017
MET-HCAL-16080	ICPMS High Cal 500ppb/10ppm s		02/02/2017
MET-ICV-160804	ICPMS ICV 100 ppb		02/02/2017
MET-IS-160511	INTERNAL STANDARD 1 PPM		11/09/2016
MET-L2CAL-16080	ICPMS Low Cal2 1/20ppb std 2		02/02/2017
MET-LCAL-160804	ICPMS Low Cal 10/200ppb std 3		02/02/2017
MET-LCAL10X-16	ICPMS Low Cal 10/200ppb std 4		02/02/2017
MET-LCAL5X-160	ICPMS Low Cal 10/200ppb std 5		02/02/2017
MET-LCVLSPIKE-	LCVL METALS SPIKE (100/500		11/07/2016
MET-MCAL-16080	ICPMS Mid Cal 250/5000ppb std		02/02/2017
MET-PA-160421	ICPMS PA FACTOR SOLUTION		10/20/2016
MET-PDS-160701-	10 PPM Ag+Sb PDS		01/01/2017
MET-PDS-160701-	10 PPM CUSTOM PDS SOLUTI		01/01/2017
MET-PDS-160701-	250 PPM Naturals+Al+Fe PDS		07/01/2017

DHL Analytical, Inc.

Run ID: ICP-MS3_160810B **Run No.:** 87549

1607317-35A	5	ICPMS_TSDOD1	SAMP	76717	8/11/2016 1:16:00 AM		
1607317-36A	5	ICPMS_TSDOD1	SAMP	76717	8/11/2016 1:29:00 AM		
1607317-37A	5	ICPMS_TSDOD1	SAMP	76717	8/11/2016 1:35:00 AM		
1607317-38A	5	ICPMS_TSDOD1	SAMP	76717	8/11/2016 1:40:00 AM		
1607337-01A	5	ICPMS_TSDOD1	SAMP	76717	8/11/2016 1:46:00 AM		
1607317-27A PDS	5	ICPMS_TSDOD1	PDS	76717	8/11/2016 1:52:00 AM		DNR
1607317-27A MS	5	ICPMS_TSDOD1	MS	76717	8/11/2016 1:58:00 AM		S flag for Pb (High). DNR
1607317-27A MSD	5	ICPMS_TSDOD1	MSD	76717	8/11/2016 2:04:00 AM		S flag for Pb (High). DNR
CCV6-160810	1	ICPMS_TWDOD	CCV	R87549	8/11/2016 2:10:00 AM		
LCVL-160810	1	ICPMS_TWDOD	LCVL	R87549	8/11/2016 2:22:00 AM		
CCB6-160810	1	ICPMS_TWDOD	CCB	R87549	8/11/2016 2:28:00 AM		
1607337-02A	5	ICPMS_TSDOD1	SAMP	76717	8/11/2016 2:34:00 AM		
1607337-03A	5	ICPMS_TSDOD1	SAMP	76717	8/11/2016 2:40:00 AM		
1607337-04A	5	ICPMS_TSDOD1	SAMP	76717	8/11/2016 2:46:00 AM		
1607337-05A	5	ICPMS_TSDOD1	SAMP	76717	8/11/2016 2:52:00 AM		
1607337-06A	5	ICPMS_TSDOD1	SAMP	76717	8/11/2016 2:58:00 AM		
1607337-07A	5	ICPMS_TSDOD1	SAMP	76717	8/11/2016 3:10:00 AM		
1607337-08A	5	ICPMS_TSDOD1	SAMP	76717	8/11/2016 3:16:00 AM		
1607337-09A	5	ICPMS_TSDOD1	SAMP	76717	8/11/2016 3:22:00 AM		
1607337-11A	5	ICPMS_TSDOD1	SAMP	76717	8/11/2016 3:28:00 AM		
1607337-12A	5	ICPMS_TSDOD1	SAMP	76717	8/11/2016 3:34:00 AM		
CCV7-160810	1	ICPMS_TWDOD	CCV	R87549	8/11/2016 3:40:00 AM		
LCVL7-160810	1	ICPMS_TWDOD	LCVL	R87549	8/11/2016 3:52:00 AM		
CCB7-160810	1	ICPMS_TWDOD	CCB	R87549	8/11/2016 3:58:00 AM		

Std ID	Std Name	Type	Exp. Date
MET-CCV-160804	ICPMS CCV 200/5000 PPB		02/02/2017
MET-H2CAL-1608	ICPMS High Cal2 2000ppb std 8		02/02/2017
MET-HCAL-16080	ICPMS High Cal 500ppb/10ppm s		02/02/2017
MET-ICV-160804	ICPMS ICV 100 ppb		02/02/2017
MET-IS-160511	INTERNAL STANDARD 1 PPM		11/09/2016
MET-L2CAL-16080	ICPMS Low Cal2 1/20ppb std 2		02/02/2017
MET-LCAL-160804	ICPMS Low Cal 10/200ppb std 3		02/02/2017
MET-LCAL10X-16	ICPMS Low Cal 10/200ppb std 4		02/02/2017
MET-LCAL5X-160	ICPMS Low Cal 10/200ppb std 5		02/02/2017
MET-LCVLSPIKE-	LCVL METALS SPIKE (100/500		11/07/2016
MET-MCAL-16080	ICPMS Mid Cal 250/5000ppb std		02/02/2017
MET-PA-160421	ICPMS PA FACTOR SOLUTION		10/20/2016
MET-PDS-160701-	10 PPM Ag+Sb PDS		01/01/2017
MET-PDS-160701-	10 PPM CUSTOM PDS SOLUTI		01/01/2017
MET-PDS-160701-	250 PPM Naturals+Al+Fe PDS		07/01/2017

	Method	Type	Vial	Data File	Sample	Comment	Dil/Lvl	ISTD Conc	Action on Failure	Skip	Result
1		Keyword		CALBEG	Start of CALIB						
2	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1101		BLANK	CAL ICPMS_TW	1.000				
3	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1102		BLANK	CAL ICPMS_TW	1.000				
4	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1103		BLANK	CAL ICPMS_TW	1.000				
5	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1104		BLANK	CAL ICPMS_TW	1.000				
6	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		BLANK	CAL ICPMS_TW	1.000				
7	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalBlk	2101		BLANK STD 1	CAL ICPMS_TW	Level 1				
8	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalStd	2102		L2-160810	CAL ICPMS_TW	Level 2				
9	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalStd	2103		L-160810	CAL ICPMS_TW	Level 3				
10	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalStd	2104		10X-160810	CAL ICPMS_TW	Level 4				
11	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalStd	2105		5X-160810	CAL ICPMS_TW	Level 5				
12	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalStd	2106		2X-160810	CAL ICPMS_TW	Level 6				
13	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalStd	2107		H-160810	CAL ICPMS_TW	Level 7				
14	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalStd	2108		H2-160810	CAL ICPMS_TW	Level 8				
15	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1104		BLANK	CAL ICPMS_TW	1.000				
16	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		BLANK	CAL ICPMS_TW	1.000				
17		Keyword		CALEND	End of CALIB						
18		Keyword		ICSBEG	Start of ICS						
19	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	ICS-A	2109		ICSA-160810	ICSAICPMS_TW	1.000				
20	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	ICS-AB	2110		ICSAB-160810	ICSBICPMS_TW	1.000				
21	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1103		RINSE	CAL ICPMS_TW	1.000				
22	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1104		RINSE	CAL ICPMS_TW	1.000				
23		Keyword		ICSEND	End of ICS						
24		Keyword		SMPLBEG	Start of SMPL						
25	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	ICV	2111		ICV1-160810	ICV ICPMS_TW	1.000				

	Method	Type	Vial	Data File	Sample	Comment	Dil/Lvl	ISTD Conc	Action on Failure	Skip	Result
26	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	ICB	1104		ICB1-160810	ICB ICPMS_TW	1.000				
27	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	ICV	2510		ICV1-160810	ICV ICPMS_TW	1.000				
28	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCVL5	2112		ILCVL-160810	LCVLICPMS_TW	1.000				
29	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	ICB	1104		ICB1-160810	ICB ICPMS_TW	1.000				
30	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	PB W	2201		MB-76606	MBLK200.8_EPA	1.000				
31	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCS_200	2202		LCS-76606	LCS 200.8_EPA	1.000				
32	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCS_200	2203		LCSD-76606	LCSD200.8_EPA	1.000				
33	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1101		RINSE	CCB ICPMS_TW	1.000				
34	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	AllRef	2204		1607168-22A	SAMP200.8_EPA	1.000				
35	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	DT	2205		1607168-22A SD	SD_200.8_EPA	5.000				
36	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	2206		1607168-21A	SAMP200.8_EPA	1.000				
37	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	2207		1607168-23A	SAMP200.8_EPA	1.000				
38	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	2208		1607168-24A	SAMP200.8_EPA	1.000				
39	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	2209		1607168-25A	SAMP200.8_EPA	1.000				
40	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	2210		1607168-26A	SAMP200.8_EPA	1.000				
41	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	2211		1607168-27A	SAMP200.8_EPA	1.000				
42	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	2212		1607168-28A	SAMP200.8_EPA	1.000				
43	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	PDS	2301		1607168-22A PDS	PDS 200.8_EPA	1.000				
44	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	MS_W	2302		1607168-22A MS	MS_200.8_EPA	1.000				
45	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	MS_W	2303		1607168-22A MSD	MSD 200.8_EPA	1.000				
46	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1101		RINSE	CCB ICPMS_TW	1.000				
47	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	AllRef	2304		1607294-09A	SAMPICPMS_TSDOD1	5.000				
48	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	DT	2305		1607294-09A SD	SD_ICPMS_TSDOD1	25.00				

	Method	Type	Vial	Data File	Sample	Comment	Dil/Lvl	ISTD Conc	Action on Failure	Skip	Result
49	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	PDS	2306		1607294-09A PDS	PDS ICPMS_TSDOD1	5.000				
50	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	MS_S	2307		1607294-09A MS	MS_ICPMS_TSDOD1	5.000				
51	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	MS_S	2308		1607294-09A MSD	MSD ICPMS_TSDOD1	5.000				
52	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	1307		CCV1-160810	CCV ICPMS_TW	1.000				
53	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1104		CCB1-160810	CCB ICPMS_TW	1.000				
54	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCVL5	2512		LCVL1-160810	LCVLICPMS_TW	1.000				
55	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		CCB1-160810	CCB ICPMS_TW	1.000				
56	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	PB	3101		MB-76690	MBLKICPMS_TSDOD1	5.000				
57	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCS	3102		LCS-76690	LCS ICPMS_TSDOD1	5.000				
58	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCS	3103		LCSD-76690	LCSDICPMS_TSDOD1	5.000				
59	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1101		RINSE	CCB ICPMS_TW	1.000				
60	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	AllRef	3104		1607314-03A	SAMPICPMS_TSDOD1	5.000				
61	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	DT	3105		1607314-03A SD	SD_ICPMS_TSDOD1	25.00				
62	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3106		1607294-69A	SAMPICPMS_TSDOD1	5.000				
63	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3107		1607294-70A	SAMPICPMS_TSDOD1	5.000				
64	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3108		1607294-71A	SAMPICPMS_TSDOD1	5.000				
65	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3109		1607294-72A	SAMPICPMS_TSDOD1	5.000				
66	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3110		1607294-73A	SAMPICPMS_TSDOD1	5.000				
67	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1101		RINSE	CCB ICPMS_TW	1.000				
68	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3111		1607294-74A	SAMPICPMS_TSDOD1	5.000				
69	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3112		1607294-75A	SAMPICPMS_TSDOD1	5.000				
70	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3201		1607314-01A	SAMPICPMS_TSDOD1	5.000				
71	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3202		1607314-02A	SAMPICPMS_TSDOD1	5.000				

	Method	Type	Vial	Data File	Sample	Comment	Dil/Lvl	ISTD Conc	Action on Failure	Skip	Result
72	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	PDS	3203		1607314-03A PDS	PDS ICPMS_TSDOD1	5.000				
73	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	MS_S	3204		1607314-03A MS	MS_ICPMS_TSDOD1	5.000				
74	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	MS_S	3205		1607314-03A MSD	MSD ICPMS_TSDOD1	5.000				
75	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	1307		CCV2-160810	CCV ICPMS_TW	1.000				
76	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1104		CCB2-160810	CCB ICPMS_TW	1.000				
77	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCVL5	2112		LCVL2-160810	LCVLICPMS_TW	1.000				
78	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		CCB2-160810	CCB ICPMS_TW	1.000				
79	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3206		1607314-04A	SAMPICPMS_TSDOD1	5.000				
80	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3207		1607314-05A	SAMPICPMS_TSDOD1	5.000				
81	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3208		1607314-06A	SAMPICPMS_TSDOD1	5.000				
82	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3209		1607317-01A	SAMPICPMS_TSDOD1	5.000				
83	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3210		1607317-02A	SAMPICPMS_TSDOD1	5.000				
84	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1101		RINSE	CCB ICPMS_TW	1.000				
85	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3211		1607317-03A	SAMPICPMS_TSDOD1	5.000				
86	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3212		1607317-04A	SAMPICPMS_TSDOD1	5.000				
87	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3301		1607317-05A	SAMPICPMS_TSDOD1	5.000				
88	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3302		1607317-06A	SAMPICPMS_TSDOD1	5.000				
89	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3303		1607317-07A	SAMPICPMS_TSDOD1	5.000				
90	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	1307		CCV3-160810	CCV ICPMS_TW	1.000				
91	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1104		CCB3-160810	CCB ICPMS_TW	1.000				
92	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCVL5	2112		LCVL3-160810	LCVLICPMS_TW	1.000				
93	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		CCB3-160810	CCB ICPMS_TW	1.000				
94	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	PB	2309		MB-76716	MBLKICPMS_TSDOD1	5.000				

	Method	Type	Vial	Data File	Sample	Comment	Dil/Lvl	ISTD Conc	Action on Failure	Skip	Result
95	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCS	2310		LCS-76716	LCS ICPMS_TSDOD1	5.000				
96	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCS	2311		LCSD-76716	LCSDICPMS_TSDOD1	5.000				
97	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1101		RINSE	CCB ICPMS_TW	1.000				
98	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	AllRef	2312		1607317-09A	SAMPICPMS_TSDOD1	5.000				
99	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	DT	2401		1607317-09A SD	SD ICPMS_TSDOD1	25.00				
100	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2402		1607317-08A	SAMPICPMS_TSDOD1	5.000				
101	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2403		1607317-10A	SAMPICPMS_TSDOD1	5.000				
102	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2404		1607317-11A	SAMPICPMS_TSDOD1	5.000				
103	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2405		1607317-12A	SAMPICPMS_TSDOD1	5.000				
104	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2406		1607317-14A	SAMPICPMS_TSDOD1	5.000				
105	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1101		RINSE	CCB ICPMS_TW	1.000				
106	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2407		1607317-15A	SAMPICPMS_TSDOD1	5.000				
107	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2408		1607317-16A	SAMPICPMS_TSDOD1	5.000				
108	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2409		1607317-17A	SAMPICPMS_TSDOD1	5.000				
109	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2410		1607317-18A	SAMPICPMS_TSDOD1	5.000				
110	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	PDS	2411		1607317-09A PDS	PDS ICPMS_TSDOD1	5.000				
111	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	MS_S	2412		1607317-09A MS	MS ICPMS_TSDOD1	5.000				
112	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	MS_S	2501		1607317-09A MSD	MSD ICPMS_TSDOD1	5.000				
113	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	1307		CCV4-160810	CCV ICPMS_TW	1.000				
114	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1104		CCB4-160810	CCB ICPMS_TW	1.000				
115	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCVL5	2112		LCVL4-160810	LCVLICPMS_TW	1.000				
116	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		CCB4-160810	CCB ICPMS_TW	1.000				
117	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2502		1607317-19A	SAMPICPMS_TSDOD1	5.000				

	Method	Type	Vial	Data File	Sample	Comment	Dil/Lvl	ISTD Conc	Action on Failure	Skip	Result
118	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2503		1607317-20A	SAMPICPMS_TSDOD1	5.000				
119	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2504		1607317-21A	SAMPICPMS_TSDOD1	5.000				
120	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2505		1607317-22A	SAMPICPMS_TSDOD1	5.000				
121	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2506		1607317-23A	SAMPICPMS_TSDOD1	5.000				
122	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1101		RINSE	CCB ICPMS_TW	1.000				
123	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2507		1607317-24A	SAMPICPMS_TSDOD1	5.000				
124	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2508		1607317-25A	SAMPICPMS_TSDOD1	5.000				
125	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2509		1607317-28A	SAMPICPMS_TSDOD1	5.000				
126	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3305		1607317-29A	SAMPICPMS_TSDOD1	5.000				
127	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3306		1607317-30A	SAMPICPMS_TSDOD1	5.000				
128	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	1307		CCV5-160810	CCV ICPMS_TW	1.000				
129	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		CCB5-160810	CCB ICPMS_TW	1.000				
130	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCVL5	2512		LCVL5-160810	LCVLICPMS_TW	1.000				
131	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		CCB5-160810	CCB ICPMS_TW	1.000				
132	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	PB	3401		MB-76717	MBLKICPMS_TSDOD1	5.000				
133	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCS	3402		LCS-76717	LCS ICPMS_TSDOD1	5.000				
134	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCS	3403		LCSD-76717	LCSDICPMS_TSDOD1	5.000				
135	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1101		RINSE	CCB ICPMS_TW	1.000				
136	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	AllRef	3404		1607317-27A	SAMPICPMS_TSDOD1	5.000				
137	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	DT	3405		1607317-27A SD	SD ICPMS_TSDOD1	25.00				
138	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3406		1607317-31A	SAMPICPMS_TSDOD1	5.000				
139	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3407		1607317-32A	SAMPICPMS_TSDOD1	5.000				
140	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3408		1607317-33A	SAMPICPMS_TSDOD1	5.000				

	Method	Type	Vial	Data File	Sample	Comment	Dil/Lvl	ISTD Conc	Action on Failure	Skip	Result
141	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3409		1607317-34A	SAMPICPMS_TSDOD1	5.000				
142	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3410		1607317-35A	SAMPICPMS_TSDOD1	5.000				
143	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1101		RINSE	CCB ICPMS_TW	1.000				
144	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3411		1607317-36A	SAMPICPMS_TSDOD1	5.000				
145	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3412		1607317-37A	SAMPICPMS_TSDOD1	5.000				
146	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3501		1607317-38A	SAMPICPMS_TSDOD1	5.000				
147	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3502		1607337-01A	SAMPICPMS_TSDOD1	5.000				
148	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	PDS	3503		1607317-27A PDS	PDS ICPMS_TSDOD1	5.000				
149	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	MS_S	3504		1607317-27A MS	MS_ICPMS_TSDOD1	5.000				
150	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	MS_S	3505		1607317-27A MSD	MSD ICPMS_TSDOD1	5.000				
151	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	1307		CCV6-160810	CCV ICPMS_TW	1.000				
152	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1104		CCB6-160810	CCB ICPMS_TW	1.000				
153	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCVL5	2112		LCVL-160810	LCVLICPMS_TW	1.000				
154	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		CCB6-160810	CCB ICPMS_TW	1.000				
155	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3506		1607337-02A	SAMPICPMS_TSDOD1	5.000				
156	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3507		1607337-03A	SAMPICPMS_TSDOD1	5.000				
157	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3508		1607337-04A	SAMPICPMS_TSDOD1	5.000				
158	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3509		1607337-05A	SAMPICPMS_TSDOD1	5.000				
159	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3510		1607337-06A	SAMPICPMS_TSDOD1	5.000				
160	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1101		RINSE	CCB ICPMS_TW	1.000				
161	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3511		1607337-07A	SAMPICPMS_TSDOD1	5.000				
162	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3512		1607337-08A	SAMPICPMS_TSDOD1	5.000				
163	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3308		1607337-09A	SAMPICPMS_TSDOD1	5.000				

	Method	Type	Vial	Data File	Sample	Comment	Dil/Lvl	ISTD Conc	Action on Failure	Skip	Result
164	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3309		1607337-11A	SAMPICPMS_TSDOD1	5.000				
165	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3310		1607337-12A	SAMPICPMS_TSDOD1	5.000				
166	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	1307		CCV7-160810	CCV ICPMS_TW	1.000				
167	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		CCB7-160810	CCB ICPMS_TW	1.000				
168	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCVL5	2512		LCVL7-160810	LCVLICPMS_TW	1.000				
169	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		CCB7-160810	CCB ICPMS_TW	1.000				
170	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1101		RINSE	CCB ICPMS_TW	1.000				
171	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1102		RINSE	CCB ICPMS_TW	1.000				
172	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1103		RINSE	CCB ICPMS_TW	1.000				
173	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1104		RINSE	CCB ICPMS_TW	1.000				
174	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		RINSE	CCB ICPMS_TW	1.000				
175	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1101		RINSE	CCB ICPMS_TW	1.000				
176	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1102		RINSE	CCB ICPMS_TW	1.000				
177	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1103		RINSE	CCB ICPMS_TW	1.000				
178		Keyword		StandBy							
179		Keyword		SMPLEND	End of SMPL						
180		Keyword		End	End of Sequence						
181		Keyword		CCVBEG	Start of CCV						
182		Keyword		CCVEND	End of CCV						
183		Keyword		BLKBEG	Start of BLANK						
184		Keyword		BLKEND	End of BLANK						
185		Keyword		ERRBEG	Start of ERRTERM						
186		Keyword		ERREND	End of ERRTERM						

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **8/5/2016 10:59:20 AM**
Digestion:
Prep End Date:

Prep Batch **76690** Prep Code: **3050_IDOD** Technician: **Cassie Van Dyke** Prep Factor Units: **mL/g**

Equipment List
Hot Block #3
Thermometer #71
Balance #20
Pipette #P-01
Pipette#-P-09

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607294-69A	Soil		1.08	50	50.000	1 of 1	
1607294-70A	Soil		1.04	50	50.000	1 of 1	
1607294-71A	Soil		1.01	50	50.000	1 of 1	
1607294-72A	Soil		1.08	50	50.000	1 of 1	
1607294-73A	Soil		1.02	50	50.000	1 of 1	
1607294-74A	Soil		1.15	50	50.000	1 of 1	
1607294-75A	Soil		1.10	50	50.000	1 of 1	
1607314-01A	Soil		1.01	50	50.000	1 of 1	
1607314-02A	Soil		1.13	50	50.000	1 of 1	
1607314-03A	Soil		1.17	50	50.000	3 of 3	
1607314-03A MS	Soil		1.03	50	50.000	3 of 3	
1607314-03A MSD	Soil		1.08	50	50.000	3 of 3	
1607314-04A	Soil		1.05	50	50.000	1 of 1	
1607314-05A	Soil		1.00	50	50.000	1 of 1	
1607314-06A	Soil		1.09	50	50.000	1 of 1	
1607317-01A	Soil		1.10	50	50.000	1 of 1	
1607317-02A	Soil		1.06	50	50.000	1 of 1	
1607317-03A	Soil		1.07	50	50.000	1 of 1	
1607317-04A	Soil		1.03	50	50.000	1 of 1	
1607317-05A	Soil		1.05	50	50.000	1 of 1	
1607317-06A	Soil		1.13	50	50.000	1 of 1	
1607317-07A	Soil		1.08	50	50.000	1 of 1	
LCS-76690	Soil		1	50	50.000	of	
LCSD-76690	Soil		1	50	50.000	of	
MB-76690	Soil		1	50	50.000	of	

Number	Reagent Name	Amt	Units	Exp. Da
10056	Digestion Vessels	1	vessel	02/10/2026
10527	Hydrogen Peroxide, 30%	3	ml	07/09/2017
10543	Nitric Acid (Trace Metals)	10	ml	01/10/2017
10544	Hydrochloric Acid (trace metal grade)	5	ml	01/10/2017

Spk ID	Spike Name	SampType	Amt (mL or g)	Exp. Date
MET-150914-10	AL PRIMARY STD 1000 PPM	LCS/MS/MSD	0.25	10/01/2016
MET-150914-9	FE PRIMARY STD 1000 PPM	LCS/MS/MSD	0.25	10/01/2016
MET-SPIKE-160701-3	2500 PPM NATURALS SPIKE	LCS/MS/MSD	0.5	09/29/2016
MET-SPIKE-160715-4B	50 PPM Sb+Ag CAL	LCS/MS/MSD	1	10/13/2016
MET-SPIKE-160715-5B	50 PPM Custom+Sn,Ti,B,Mo,Sr CAL	LCS/MS/MSD	1	10/13/2016

12:29-12:39
12:40-14:40
15:00-17:00
17:32-17:47

REVIEWED BY
By Janice Whitt at 10:34:35 AM, 8/15/2016

8/5/16

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **7/26/2016 5:30:00 PM**
Digestion: **Start: 7/26/2016 6:40:00 PM / Stop: 7/29/2016 1:40:00 PM**
Prep End Date: **7/29/2016 3:00:00 PM**

Prep Batch **76518** Prep Code: **ISM2MM_PREP** Technician: **Jennifer Barker** Prep Factor Units: **mL/**

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607294-66A	Soil		0	0	#Num!	1 of 1	
	Sieve only hard clay						
1607294-67A	Soil		0	0	#Num!	1 of 1	
	Sieve only hard clay						
1607294-68A	Soil		0	0	#Num!	1 of 1	
	SS						
1607294-69A	Soil		0	0	#Num!	1 of 1	
	SS						
1607294-70A	Soil		0	0	#Num!	1 of 1	
	Sieve only hard clay						
1607294-71A	Soil		0	0	#Num!	1 of 1	
	Sieve only hard clay						
1607294-72A	Soil		0	0	#Num!	1 of 1	
	SS						
1607294-73A	Soil		0	0	#Num!	1 of 1	
	SS						
1607294-74A	Soil		0	0	#Num!	1 of 1	
	SS						
1607294-75A	Soil		0	0	#Num!	1 of 1	
	Sieve only hard clay						

REVIEWED BY
By Janice Whitt at 10:35:45 AM, 8/15/2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **7/28/2016 12:00:00 PM**
Digestion: **Start: 7/28/2016 12:10:00 PM / Stop: 7/29/2016 1:30:00 PM**
Prep End Date: **7/29/2016 3:00:00 PM**

Prep Batch **76539** Prep Code: **ISM2MM_PREP** Technician: **Jennifer Barker** Prep Factor Units: **mL/**

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607314-01A	Soil		0	0	#Num!	1 of 1	
SS							
1607314-02A	Soil		0	0	#Num!	1 of 1	
SS							
1607314-03A	Soil		0	0	#Num!	of 3	
SS MS/MSD							
1607314-04A	Soil		0	0	#Num!	1 of 1	
SS							
1607314-05A	Soil		0	0	#Num!	1 of 1	
SS							
1607314-06A	Soil		0	0	#Num!	1 of 1	
SS							

REVIEWED BY
By Janice Whitt at 10:35:47 AM, 8/15/2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **7/28/2016 4:31:01 PM**
Digestion: **Start: 7/28/2016 4:45:00 PM / Stop: 8/1/2016 10:00:00 AM**
Prep End Date: **8/2/2016 10:00:00 AM**

Prep Batch **76551** Prep Code: **ISM2MM_PREP** Technician: **Jennifer Barker**

Prep Factor Units: **mL/**

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607317-01A	Soil		0	0	#Num!	1 of 1	
SS							
1607317-02A	Soil		0	0	#Num!	1 of 1	
SS							
1607317-03A	Soil		0	0	#Num!	1 of 1	
Sieve only hard clay							
1607317-04A	Soil		0	0	#Num!	1 of 1	
Sieve only hard clay							
1607317-05A	Soil		0	0	#Num!	1 of 1	
SS							
1607317-06A	Soil		0	0	#Num!	1 of 1	
SS							
1607317-07A	Soil		0	0	#Num!	1 of 1	
Sieve only hard clay							
1607317-08A	Soil		0	0	#Num!	1 of 1	
Sieve only hard clay							
1607317-09A	Soil		0	0	#Num!	of 3	
SS MS/MSD							
1607317-10A	Soil		0	0	#Num!	1 of 1	
SS							
1607317-11A	Soil		0	0	#Num!	1 of 1	
Sieve only hard clay							
1607317-12A	Soil		0	0	#Num!	1 of 1	
Sieve only hard clay							
1607317-14A	Soil		0	0	#Num!	1 of 1	
SS							

REVIEWED BY
By Janice Whitt at 10:36:27 AM, 8/15/2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **7/28/2016 4:31:01 PM**
Digestion: **Start: 7/28/2016 4:45:00 PM / Stop: 8/1/2016 10:00:00 AM**
Prep End Date: **8/2/2016 10:00:00 AM**

Prep Batch **76551** Prep Code: **ISM2MM_PREP** Technician: **Jennifer Barker**

Prep Factor Units: **mL/**

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607317-15A	Soil		0	0	#Num!	1 of 1	
SS							
1607317-16A	Soil		0	0	#Num!	1 of 1	
SS							
1607317-17A	Soil		0	0	#Num!	1 of 1	
SS							
1607317-18A	Soil		0	0	#Num!	1 of 1	
SS							
1607317-19A	Soil		0	0	#Num!	1 of 1	
SS							
1607317-20A	Soil		0	0	#Num!	1 of 1	
SS							
1607317-21A	Soil		0	0	#Num!	1 of 1	
SS							
1607317-22A	Soil		0	0	#Num!	1 of 1	
SS							
1607317-23A	Soil		0	0	#Num!	1 of 1	
SS							
1607317-24A	Soil		0	0	#Num!	1 of 1	
SS							
1607317-25A	Soil		0	0	#Num!	1 of 1	
SS							
1607317-27A	Soil		0	0	#Num!	of 3	
SS MS/MSD							
1607317-28A	Soil		0	0	#Num!	1 of 1	
SS							

REVIEWED BY
By Janice Whitt at 10:36:37 AM, 8/15/2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **7/28/2016 4:31:01 PM**
Digestion: **Start: 7/28/2016 4:45:00 PM / Stop: 8/1/2016 10:00:00 AM**
Prep End Date: **8/2/2016 10:00:00 AM**

Prep Batch **76551** Prep Code: **ISM2MM_PREP** Technician: **Jennifer Barker**

Prep Factor Units: **mL/**

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607317-29A	Soil		0	0	#Num!	1 of 1	
SS							
1607317-30A	Soil		0	0	#Num!	1 of 1	
Sieve only hard clay							
1607317-31A	Soil		0	0	#Num!	1 of 1	
SS							
1607317-32A	Soil		0	0	#Num!	1 of 1	
SS							
1607317-33A	Soil		0	0	#Num!	1 of 1	
SS							
1607317-34A	Soil		0	0	#Num!	1 of 1	
Sieve only hard clay							
1607317-35A	Soil		0	0	#Num!	1 of 1	
SS							
1607317-36A	Soil		0	0	#Num!	1 of 1	
SS							
1607317-37A	Soil		0	0	#Num!	1 of 1	
SS							
1607317-38A	Soil		0	0	#Num!	1 of 1	
Sieve only hard clay							

REVIEWED BY
By Janice Whitt at 10:36:40 AM, 8/15/2016

MECHANICAL VOLUMETRIC PIPETTE VOLUME DAILY CHECK - DOD QSM 5.0

ANALYST:	SP	**BALANCE #:**	26	
TEST DATE:	08/05/2016	**Water is at Room Temperatue (70-73°F) / (21-23°C)**		
PIPETTER LAB ID:	P-01, P-09	**WATER TEMP (°C):**	**21-23°C**	
TEST VOLUME:	See Below	**WATER DENSITY:**	**0.998**	**(0.9980-0.9976)**

REFERENCE:	DoD QSM 5.0
# of REPLICATES:	3
LABWARE TYPE:	MECHANICAL VOLUMETRIC PIPETTE
FREQUENCY:	DAILY BEFORE USE
MEAN CRITERIA:	± 2% OF NOMINAL VOLUME (VOLUME OF USE/TEST VOLUME)
RSD CRITERIA:	< 1% OF NOMINAL VOLUME (BASED ON MINIMUM OF 3 REPLICATE MEASUREMENTS)

1) RECORD ROOM AND WATER TEMPERATURE	**% TEST VOL = Volume of H2O at °C/Test Volume * 100**
2) TARE VESSEL ON BALANCE. ADD TEST VOLUME.	**%RSD = STDEV (Mean Volume)/AVERAGE (Mean Volume) *100**
3) WEIGH 3 REPLICATES AT THE TEST VOLUME.	
4) DETERMINE TOTAL WT.	
5) CALCULATE VOLUME OF H2O AT °C (in mL)	**VOLUME OF H2O AT °C = TOTAL WT / WATER DENSITY**

					BIAS	PRECISION
PIPETTE ID: P-01	**TEST VOLUME (mL)**	**TOTAL WT (g)**	**Volume of H_2O at °C**	**% TEST VOL (98-102%)**	**MEAN CRITERIA (± 2%)**	**% RSD Calculated**
1	**5.00**	5.0031	5.0131	**100.26**	**PASS**	**RSD MUST BE ≤ 1% OF TEST VOLUME VALUE**
2		4.9858	4.9958	**99.92**		
3		4.9726	4.9826	**99.65**		
AVERAGE (MEAN)		**4.987**	**4.997**	**99.94**		**0.307**
						PASS

PIPETTE ID: P-09	**TEST VOLUME (mL)**	**TOTAL WT (g)**	**Volume of H_2O at °C**	**% TEST VOL (98-102%)**	**MEAN CRITERIA (± 2%)**	**% RSD Calculated**
1	**0.20**	0.2014	0.2018	**100.90**	**PASS**	**RSD MUST BE ≤ 1% OF TEST VOLUME VALUE**
2		0.2021	0.2025	**101.25**		
3		0.2021	0.2025	**101.25**		
AVERAGE (MEAN)		**0.202**	**0.202**	**101.14**		**0.200**
						PASS

PIPETTE ID:	**TEST VOLUME (mL)**	**TOTAL WT (g)**	**Volume of H_2O at °C**	**% TEST VOL (98-102%)**	**MEAN CRITERIA (± 2%)**	**% RSD Calculated**
1						**RSD MUST BE ≤ 1% OF TEST VOLUME VALUE**
2						
3						
AVERAGE (MEAN)						

Analyst / Date 8/5/16

REVIEWED BY
By Janice Whitt at 10:36:43 AM, 8/15/2016

Review and Approved / Date

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **8/5/2016 10:59:20 AM**
Digestion: **Start: 8/5/2016 12:29:00 PM / Stop: 8/5/2016 5:47:00 PM**
Prep End Date: **8/5/2016 6:04:00 PM**

Prep Batch **76690** Prep Code: **3050_IDOD** Technician: **Cassie Van Dyke**

Prep Factor Units: **mL/g**

Equipment List

- Hot Block #3
- Thermometer #71
- Balance #20
- Pipette #P-01
- Pipette#-P-09

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607294-69A	Soil		1.08	50	46.296	1 of 1	
1607294-70A	Soil		1.04	50	48.077	1 of 1	
1607294-71A	Soil		1.01	50	49.505	1 of 1	
1607294-72A	Soil		1.08	50	46.296	1 of 1	
1607294-73A	Soil		1.02	50	49.020	1 of 1	
1607294-74A	Soil		1.15	50	43.478	1 of 1	
1607294-75A	Soil		1.1	50	45.455	1 of 1	
1607314-01A	Soil		1.01	50	49.505	1 of 1	
1607314-02A	Soil		1.13	50	44.248	1 of 1	
1607314-03A	Soil		1.17	50	42.735	of 3	
1607314-03A MS	Soil		1.03	50	48.544	of	
1607314-03A MSD	Soil		1.08	50	46.296	of	
1607314-03A PDS	Soil		1.17	50	42.735	of	
1607314-03A SD	Soil		1.17	50	42.735	of	
1607314-04A	Soil		1.05	50	47.619	1 of 1	
1607314-05A	Soil		1	50	50.000	1 of 1	
1607314-06A	Soil		1.09	50	45.872	1 of 1	
1607317-01A	Soil		1.1	50	45.455	1 of 1	
1607317-02A	Soil		1.06	50	47.170	1 of 1	
1607317-03A	Soil		1.07	50	46.729	1 of 1	
1607317-04A	Soil		1.03	50	48.544	1 of 1	
1607317-05A	Soil		1.05	50	47.619	1 of 1	
1607317-06A	Soil		1.13	50	44.248	1 of 1	
1607317-07A	Soil		1.08	50	46.296	1 of 1	
LCS-76690	Soil		1	50	50.000	of	
LCSD-76690	Soil		1	50	50.000	of	
MB-76690	Soil		1	50	50.000	of	

Number	Reagent Name	Amt	Units	Exp. Da
10056	Digestion Vessels	1	vessel	02/10/2026
10527	Hydrogen Peroxide, 30%	3	ml	07/09/2017
10543	Nitric Acid (Trace Metals)	10	ml	01/10/2017
10544	Hydrochloric Acid (trace metal grade)	5	ml	01/10/2017

Spk ID	Spike Name	SampType	Amt (mL or g)	Exp. Date
MET-150914-10	AL PRIMARY STD 1000 PPM	LCS/MS/MSD	0.25	10/01/2016
MET-150914-9	FE PRIMARY STD 1000 PPM	LCS/MS/MSD	0.25	10/01/2016
MET-SPIKE-160701-3	2500 PPM NATURALS SPIKE	LCS/MS/MSD	0.5	09/29/2016
MET-SPIKE-160715-4B	50 PPM Sb+Ag CAL	LCS/MS/MSD	1	10/13/2016
MET-SPIKE-160715-5B	50 PPM Custom+Sn,Ti,B,Mo,Sr CAL	LCS/MS/MSD	1	10/13/2016

REVIEWED BY
By Janice Whitt at 10:34:31 AM, 8/15/2016

MECHANICAL VOLUMETRIC PIPETTE VOLUME DAILY CHECK - DOD QSM 5.0

ANALYST:	CVD	**BALANCE #:**	30	
TEST DATE:	08/10/2016	**Water is at Room Temperatue (70-73°F) / (21-23°C)**		
PIPETTER LAB ID:	See Below	**WATER TEMP (°C):**	21-23°C	
TEST VOLUME:	See Below	**WATER DENSITY:**	0.998	(0.9980-0.9976)

REFERENCE:	DoD QSM 5.0
# of REPLICATES:	3
LABWARE TYPE:	MECHANICAL VOLUMETRIC PIPETTE
FREQUENCY:	DAILY BEFORE USE
MEAN CRITERIA:	± 2% OF NOMINAL VOLUME (VOLUME OF USE/TEST VOLUME)
RSD CRITERIA:	< 1% OF NOMINAL VOLUME (BASED ON MINIMUM OF 3 REPLICATE MEASUREMENTS)

1) RECORD ROOM AND WATER TEMPERATURE
2) TARE VESSEL ON BALANCE. ADD TEST VOLUME.
3) WEIGH 3 REPLICATES AT THE TEST VOLUME.
4) DETERMINE TOTAL WT.
5) CALCULATE VOLUME OF H2O AT °C (in mL)

% TEST VOL = Volume of H2O at °C/Test Volume * 100

%RSD = STDEV (Mean Volume)/AVERAGE (Mean Volume) *100

VOLUME OF H2O AT °C = TOTAL WT * WATER DENSITY

					BIAS	PRECISION
PIPETTE ID: P-31	**TEST VOLUME (mL)**	**TOTAL WT (g)**	**Volume of H_2O at °C**	**% TEST VOL (98-102%)**	**MEAN CRITERIA (± 2%)**	**% RSD Calculated**
1	4.00	4.0017	3.9937	99.84	PASS	RSD MUST BE ≤ 1% OF TEST VOLUME VALUE
2		4.0056	3.9976	99.94		
3		4.0028	3.9948	99.87		
AVERAGE (MEAN)		**4.003**	**3.995**	**99.88**		0.050
						PASS

PIPETTE ID: P-21	**TEST VOLUME (mL)**	**TOTAL WT (g)**	**Volume of H_2O at °C**	**% TEST VOL (98-102%)**	**MEAN CRITERIA (± 2%)**	**% RSD Calculated**
1	1.00	1.0036	1.0016	100.16	PASS	RSD MUST BE ≤ 1% OF TEST VOLUME VALUE
2		1.0024	1.0004	100.04		
3		1.0013	0.9993	99.93		
AVERAGE (MEAN)		**1.002**	**1.000**	**100.04**		0.115
						PASS

PIPETTE ID: P-39	**TEST VOLUME (mL)**	**TOTAL WT (g)**	**Volume of H_2O at °C**	**% TEST VOL (98-102%)**	**MEAN CRITERIA (± 2%)**	**% RSD Calculated**
1	0.500	0.5049	0.5039	100.78	PASS	RSD MUST BE ≤ 1% OF TEST VOLUME VALUE
2		0.5051	0.5041	100.82		
3		0.5038	0.5028	100.56		
AVERAGE (MEAN)		**0.505**	**0.504**	**100.72**		0.139
						PASS

CVB 8/10/16
Analyst / Date

REVIEWED BY
By Janice Whitt at 10:36:52 AM, 8/15/2016
Review and Approved / Date

Calibration Summary Report

Instrument: ICPMS3
Current Method: C:\ICPCHEM\1\METHODS\DHL_3Fe.M
Calibration: C:\ICPCHEM\1\CALIB\DHL_3FE.c
Last Update: Aug 10 2016 02:34 pm
Cal Type: Y=aX+[blank]

Standard	Date Acquired	File
BLANK STD 1	Aug 10 2016 11:23 am	c:\icpchem\1\data\16h10k01.b\006calb.d\
L2-160810	Aug 10 2016 11:29 am	c:\icpchem\1\data\16h10k01.b\007cals.d\
L-160810	Aug 10 2016 11:35 am	c:\icpchem\1\data\16h10k01.b\008cals.d\
10X-160810	Aug 10 2016 11:41 am	c:\icpchem\1\data\16h10k01.b\009cals.d\
5X-160810	Aug 10 2016 11:47 am	c:\icpchem\1\data\16h10k01.b\010cals.d\
2X-160810	Aug 10 2016 11:53 am	c:\icpchem\1\data\16h10k01.b\011cals.d\

Element Name	Corr Coef	Coef A	Coef B	Lvl 2	Lvl 6	Lvl 7	L7 %R	Lvl 8	L8 %R
Li	1.0000	0.2521	0.02647	1.02	251	495		2001	
Be	0.9998	0.08084	0.001981	1.02	258	495	99%	--------	######
B	1.0000	0.06709	0.1279	1.03	246	506	101%	1,999	100%
Na	0.9999	0.3114	16.92	21.48	5,224	10,290	103%	24,840	99%
Mg	0.9999	0.1379	0.6385	20.85	4,942	10,290	103%	24,890	100%
Al	1.0000	0.03346	0.4768	19.83	4,968	10,020	100%	--------	######
K	1.0000	0.07929	5.958	21.58	4,873	9,826	98%	25,100	100%
Ca	0.9999	0.009081	0.3945	22.79	5,134	10,200	102%	24,900	100%
Ti	0.9999	0.03024	0.003928	0.77	245	480	96%	2,006	100%
V	1.0000	1.163	0.3249	1.05	247	488	98%	2,003	100%
Cr	0.9999	1.535	0.173	1.01	249	--------	######	--------	######
Mn	1.0000	0.6303	0.06545	1.05	248	496	99%	2,001	100%
Fe	1.0000	2.099	18.68	19.83	5,019	9,972	100%	--------	######
Co	1.0000	4.784	0.09645	1.04	252	519	104%	1,995	100%
Ni	1.0000	1.394	0.07902	1.03	249	492	98%	2,002	100%
Cu	1.0000	3.723	0.4669	1.05	255	504	101%	1,998	100%
Zn	1.0000	0.3847	0.2802	1.28	261	511	102%	1,996	100%
As	1.0000	0.2316	0.1742	1.01	252	499	100%	2,000	100%
Se	1.0000	0.01415	0.009581	1.21	251	500	100%	2,000	100%
Sr	1.0000	0.3439	0.06934	1.01	251	495	99%	2,001	100%
Mo	1.0000	0.05919	0.002267	0.98	248	502	100%	--------	######
Ag	1.0000	0.1533	0.002021	1.00	252	499	100%	--------	######
Cd	1.0000	0.0328	0.0007325	0.97	247	489	98%	2,003	100%
Sn	1.0000	0.09083	0.007435	0.95	243	511	102%	1,998	100%
Sb	0.9999	0.1069	0.002337	0.95	245	503	101%	--------	######
Ba	0.9999	0.04217	0.003401	0.91	240	482	96%	2,006	100%
Tl	1.0000	0.3331	0.006798	0.95	255	502	100%	1,999	100%
Pb	1.0000	0.4539	0.0208	0.99	248	506	101%	1,999	100%

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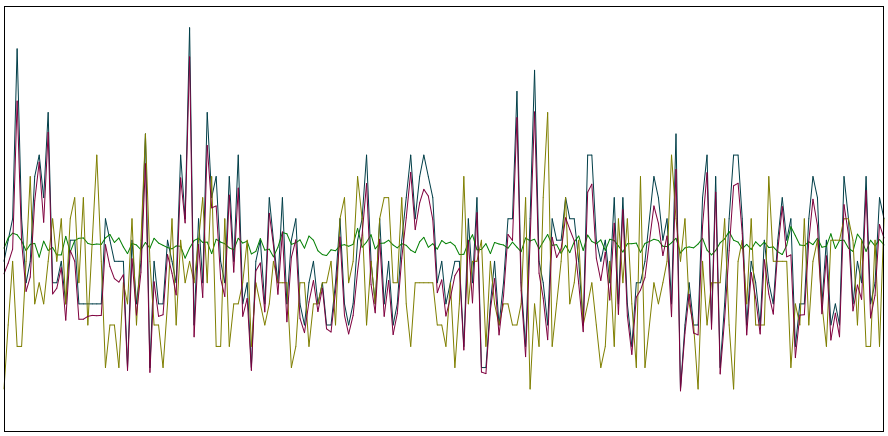
By Janice Whitt at 11:07:05 AM, 8/11/2016

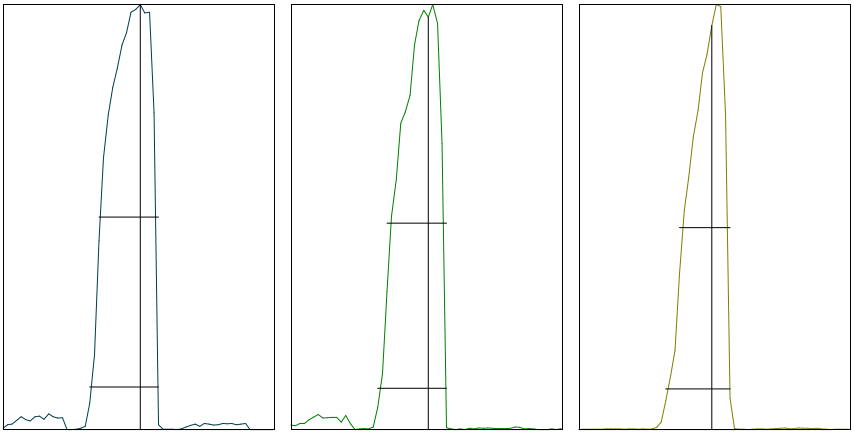
Tune Report

Tune File : He.U
Comment :



Integration Time:	0.1000 sec	
Sampling Period:	0.3100 sec	
n:	200	
Oxide:	156/140	0.385%
Doubly Charged:	70/140	2.643%

m/z	Range	Count	Mean	RSD%	Background
51	20	10.0	8.4	35.34	0.50
59	5,000	2195.0	2199.1	3.09	0.90
75	20	10.0	7.1	36.32	1.20
51/59	1	0.456%	0.382%	35.16	



m/z:	59	89	205
Height:	2,270	1,125	3,573
Axis:	59.05	89.05	205.00
W-50%:	0.65	0.65	0.55
W-10%:	0.7500	0.7500	0.700

Integration Time:	0.1000 sec
Acquisition Time:	22.5600 sec

Y axis : Linear

Generated : Aug 10, 2016 10:18:09
Printed : Aug 10, 2016 10:18:11

Tune Report

Tune File : He.U
Comment :

Tuning Parameters

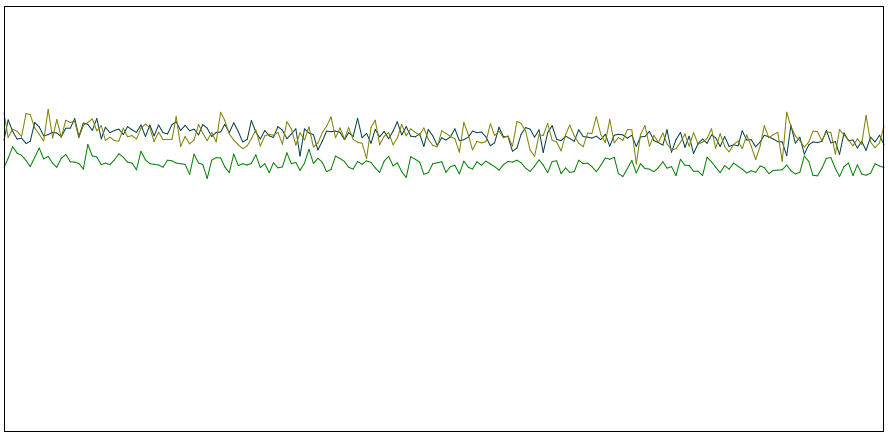
===Plasma Condition===				===Ion Lenses===				===Q-Pole Parameters===			
RF Power	:	1600	W	Extract 1	:	0	V	AMU Gain	:	124	
RF Matching	:	1.6	V	Extract 2	:	-150	V	AMU Offset	:	120	
Smpl Depth	:	9	mm	Omega Bias-ce	:	-20	V	Axis Gain	:	0.9993	
Torch-H	:	0	mm	Omega Lens-ce	:	0	V	Axis Offset	:	-0.03	
Torch-V	:	0.8	mm	Cell Entrance	:	-40	V	QP Bias	:	-14.6	V
Carrier Gas	:	1.2	L/min	QP Focus	:	-10	V				
Makeup Gas	:	0	L/min	Cell Exit	:	-40	V	===Detector Parameters===			
Optional Gas	:	---	%					Discriminator	:	8	mV
Nebulizer Pump	:	0.1	rps	===Octopole Parameters===				Analog HV	:	1750	V
Sample Pump	:	---	rps	OctP RF	:	170	V	Pulse HV	:	1520	V
S/C Temp	:	2	degC	OctP Bias	:	-16	V				

===Reaction Cell===

Reaction Mode	:	ON									
H2 Gas	:	0	mL/min	He Gas	:	4.8	mL/min	Optional Gas	:	---	%

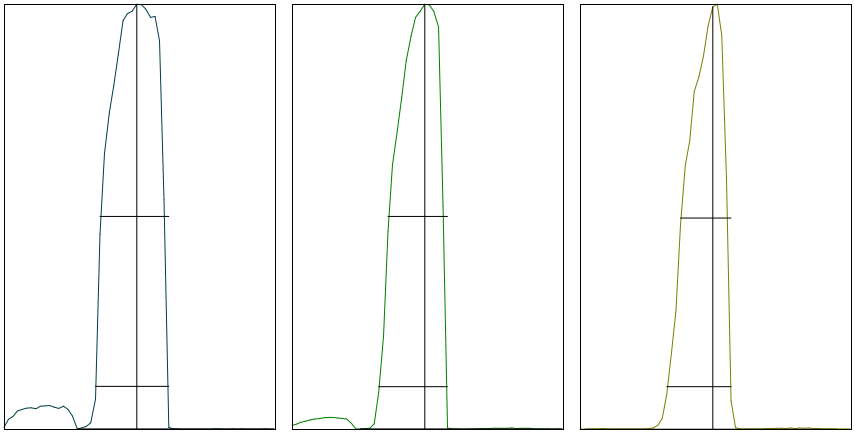
Tune Report

Tune File : nogas.u
Comment :



Integration Time:	0.1000 sec	
Sampling Period:	0.8200 sec	
n:	200	
Oxide:	156/140	1.004%
Doubly Charged:	70/140	3.091%

m/z	Range	Count	Mean	RSD%	Background
7	10,000	6748.0	6954.2	2.55	3.50
89	20,000	12414.0	12546.5	2.35	7.90
205	10,000	7187.0	6955.3	3.35	18.10
156/140	2	0.976%	0.984%	11.55	
70/140	5	2.759%	2.987%	12.13	
63	10,000	9316.0	9605.4	2.52	5.30
23	50,000	38173.0	40461.4	7.69	3.60



m/z:	7	89	205
Height:	6,849	12,456	7,056
Axis:	7.00	89.00	205.00
W-50%:	0.75	0.65	0.55
W-10%:	0.800	0.7500	0.700

Integration Time:	0.1000 sec
Acquisition Time:	22.7600 sec

Y axis : Linear

Generated : Aug 10, 2016 10:11:16
Printed : Aug 10, 2016 10:11:18

Tune Report

Tune File : nogas.u
Comment :

Tuning Parameters

===Plasma Condition===				===Ion Lenses===				===Q-Pole Parameters===			
RF Power	:	1600	W	Extract 1	:	0	V	AMU Gain	:	124	
RF Matching	:	1.6	V	Extract 2	:	-150	V	AMU Offset	:	120	
Smpl Depth	:	9	mm	Omega Bias-ce	:	-22	V	Axis Gain	:	0.9993	
Torch-H	:	0	mm	Omega Lens-ce	:	-1	V	Axis Offset	:	-0.03	
Torch-V	:	0.8	mm	Cell Entrance	:	-26	V	QP Bias	:	-3	V
Carrier Gas	:	1.2	L/min	QP Focus	:	0	V				
Makeup Gas	:	0	L/min	Cell Exit	:	-40	V	===Detector Parameters===			
Optional Gas	:	---	%					Discriminator	:	8	mV
Nebulizer Pump	:	0.1	rps	===Octopole Parameters===				Analog HV	:	1750	V
Sample Pump	:	---	rps	OctP RF	:	170	V	Pulse HV	:	1520	V
S/C Temp	:	2	degC	OctP Bias	:	-6	V				

===Reaction Cell===

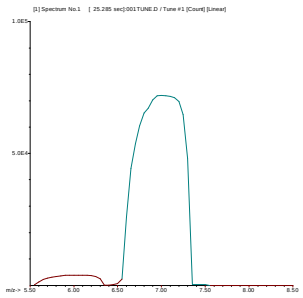
Reaction Mode	:	OFF									
H2 Gas	:	0	mL/min	He Gas	:	0	mL/min	Optional Gas	:	---	%

6020 QC Tune Report

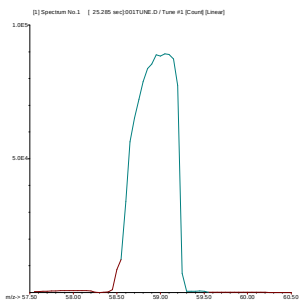
Data File: C:\ICPCHEM\1\DATA\16H10k00.B\001TUNE.D
Date Acquired: Aug 10 2016 10:25 am
Acq. Method: TN6020.M
Operator: KL
Sample Name: TUNE CHECK
Misc Info:
Vial Number: 1301
Current Method: C:\ICPCHEM\1\METHODS\TN6020.M

RSD (%)

Element	Actual	Required	Flag
7 Li	1.73	5.00	
59 Co	1.52	5.00	
115 In	0.92	5.00	
205 Tl	0.90	5.00	



7 Li
Mass Calib.
Actual: 7.05
Required: 6.90 - 7.10
Flag:
Peak Width
Actual: 0.70
Required: 0.90
Flag:



59 Co
Mass Calib.
Actual: 59.05
Required: 58.90 - 59.10
Flag:
Peak Width
Actual: 0.60
Required: 0.90
Flag:

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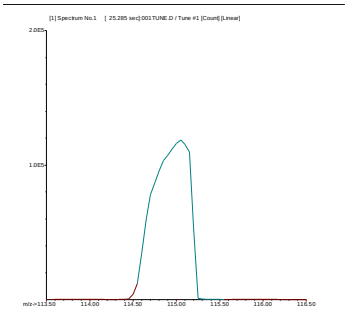


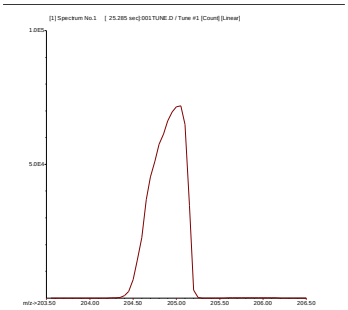
115 In

Mass Calib.

Actual:	115.05	
Required:	114.90 -	115.10
Flag:		

Peak Width

Actual:	0.60
Required:	0.90
Flag:	



205 Tl

Mass Calib.

Actual:	205.00	
Required:	204.90 -	205.10
Flag:		

Peak Width

Actual:	0.60
Required:	0.90
Flag:	

REVIEWED BY
By Janice Whitt at 11:07:32 AM, 8/11/2016

Calibration Blank QC Report

Acq. Method: DHL_3Fe.M Sample Name: BLANK STD 1
Operator: KL Instrument: ICPMS3
Last Cal. Update: Aug 10 2016 11:27 am
Date Acquired: Aug 10 2016 11:23 am

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)
6	Li	2	---	36.77	P	19.13	52.03
7	Li	2	45	771.16	P	25.02	3.24
9	Be	2	45	57.78	P	21.43	37.09
11	B	2	45	3726.25	P	104.10	2.79
23	Na	1	45	13352.08	P	101.40	0.76
24	Mg	1	45	503.36	P	72.19	14.34
27	Al	1	45	376.01	P	41.40	11.01
39	K	1	45	4699.97	P	296.10	6.30
44	Ca	2	45	11491.50	P	244.80	2.13
45	Sc	1	---	157844.09	P	1644.00	1.04
45	Sc	2	---	5827273.00	A	60900.00	1.05
47	Ti	1	45	3.11	P	3.36	107.87
51	V	1	45	256.45	P	8.47	3.30
51	V	2	---		P		
52	Cr	1	45	136.45	P	14.63	10.72
55	Mn	1	45	51.56	P	14.26	27.66
56	Fe	1	72	8091.08	P	747.10	9.23
59	Co	1	72	41.78	P	12.60	30.16
60	Ni	1	72	34.22	P	0.77	2.25
60	Ni	2	---		P		
63	Cu	1	72	202.23	P	25.80	12.76
63	Cu	2	---		P		
66	Zn	1	72	121.34	P	11.85	9.77
66	Zn	2	---		P		
72	Ge	1	---	86621.49	P	464.30	0.54
72	Ge	2	---		A		
75	As	1	72	75.44	P	2.32	3.08
78	Se	1	72	4.15	P	0.68	16.37
88	Sr	2	###	2175.85	P	30.05	1.38
95	Mo	2	###	71.11	P	19.25	27.07
107	Ag	2	###	63.34	P	21.86	34.51
111	Cd	2	###	23.01	P	9.54	41.47
115	In	2	---	6276207.00	A	44580.00	0.71
118	Sn	2	###	233.35	P	37.57	16.10
121	Sb	2	###	73.34	P	5.77	7.87
137	Ba	2	###	106.67	P	8.82	8.27
205	Tl	2	###	151.12	P	8.39	5.55
208	Pb	2	###	462.25	P	53.99	11.68
209	Bi	2	---	4446754.00	A	35290.00	0.79

Calibration Standard QC Report

Acq. Method: DHL_3Fe.M Sample Name: L2-160810
Operator: KL Instrument: ICPMS3
Date Acquired: Aug 10 2016 11:29 am
Last Cal. Update: Aug 10 2016 11:27 am

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)	Flag
6	Li	2	---	-328.35	P	19.46	5.93	ISFail
7	Li	2	45	8137.34	P	35.37	0.43	
9	Be	2	45	2439.22	P	57.39	2.35	
11	B	2	45	5671.50	P	203.50	3.59	
23	Na	1	45	18414.17	P	362.80	1.97	
24	Mg	1	45	2740.42	P	55.08	2.01	
27	Al	1	45	889.83	P	25.03	2.81	
39	K	1	45	5981.68	P	116.20	1.94	
44	Ca	2	45	17307.85	P	1365.00	7.89	
45	Sc	1	---	156019.70	P	2042.00	1.31	
45	Sc	2	---	5753219.00	A	103700.00	1.80	
47	Ti	1	45	21.33	P	3.53	16.54	
51	V	1	45	1208.08	P	57.62	4.77	
51	V	2	---		P			
52	Cr	1	45	1349.43	P	65.85	4.88	
55	Mn	1	45	565.35	P	77.88	13.78	
56	Fe	1	72	25863.22	P	777.10	3.00	
59	Co	1	72	2173.56	P	69.90	3.22	
60	Ni	1	72	649.81	P	44.81	6.90	
60	Ni	2	---		P			
63	Cu	1	72	1873.06	P	47.34	2.53	
63	Cu	2	---		P			
66	Zn	1	72	330.68	P	48.66	14.72	
66	Zn	2	---		P			
72	Ge	1	---	85788.02	P	840.50	0.98	
72	Ge	2	---		A			
75	As	1	72	174.74	P	4.47	2.56	
78	Se	1	72	11.48	P	1.39	12.10	
88	Sr	2	115	12990.83	P	150.40	1.16	
95	Mo	2	115	1889.12	P	177.40	9.39	
107	Ag	2	115	4866.74	P	56.82	1.17	
111	Cd	2	115	1017.47	P	47.71	4.69	
115	In	2	---	6256392.00	A	51380.00	0.82	
118	Sn	2	115	2939.38	P	130.90	4.45	
121	Sb	2	115	3259.47	P	56.41	1.73	
137	Ba	2	115	1307.91	P	122.80	9.39	
205	Tl	2	209	7082.51	P	241.20	3.41	
208	Pb	2	209	10285.66	P	46.71	0.45	
209	Bi	2	---	4395361.00	A	35260.00	0.80	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-328.35	5.93	36.77	-893.0	70 - 120	ISFail
45	Sc	1	156019.70	1.31	157844.06	98.8	70 - 120	
45	Sc	2	5753218.50	1.80	5827273.50	98.7	70 - 120	
72	Ge	1	85788.02	0.98	86621.49	99.0	70 - 120	
115	In	2	6256392.50	0.82	6276207.00	99.7	70 - 120	
209	Bi	2	4395361.00	0.80	4446753.50	98.8	70 - 120	

Calibration Standard QC Report

Acq. Method: DHL_3Fe.M Sample Name: L-160810
Operator: KL Instrument: ICPMS3
Date Acquired: Aug 10 2016 11:35 am
Last Cal. Update: Aug 10 2016 11:33 am

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)	Flag
6	Li	2	---	-3446.19	P	24.24	0.70	ISFail
7	Li	2	45	74023.09	P	803.60	1.09	Fail
9	Be	2	45	23731.76	P	450.30	1.90	Fail
11	B	2	45	22654.39	P	294.00	1.30	Fail
23	Na	1	45	62444.13	P	432.30	0.69	Fail
24	Mg	1	45	21934.39	P	787.50	3.59	Fail
27	Al	1	45	5561.32	P	208.90	3.76	Fail
39	K	1	45	16884.32	P	603.60	3.57	Fail
44	Ca	2	45	63351.58	P	1583.00	2.50	Fail
45	Sc	1	---	154506.50	P	1761.00	1.14	
45	Sc	2	---	5765751.00	A	98200.00	1.70	
47	Ti	1	45	234.23	P	28.79	12.29	Fail
51	V	1	45	9247.59	P	182.40	1.97	Fail
51	V	2	---		P			
52	Cr	1	45	12348.09	P	215.10	1.74	Fail
55	Mn	1	45	5062.45	P	94.05	1.86	Fail
56	Fe	1	72	185385.50	P	3934.00	2.12	Fail
59	Co	1	72	20770.16	P	359.00	1.73	
60	Ni	1	72	6012.67	P	207.60	3.45	Fail
60	Ni	2	---		P			
63	Cu	1	72	16708.88	P	634.70	3.80	Fail
63	Cu	2	---		P			
66	Zn	1	72	1811.72	P	55.16	3.04	Fail
66	Zn	2	---		P			
72	Ge	1	---	84879.22	P	755.20	0.89	
72	Ge	2	---		A			
75	As	1	72	1068.16	P	36.54	3.42	Fail
78	Se	1	72	65.82	P	1.45	2.20	Fail
88	Sr	2	115	104718.70	P	1624.00	1.55	Fail
95	Mo	2	115	18214.37	P	515.00	2.83	Fail
107	Ag	2	115	47348.87	P	548.90	1.16	Fail
111	Cd	2	115	10296.76	P	70.30	0.68	Fail
115	In	2	---	6293745.00	A	92900.00	1.48	
118	Sn	2	115	27584.96	P	664.80	2.41	Fail
121	Sb	2	115	32392.72	P	789.00	2.44	Fail
137	Ba	2	115	12473.77	P	154.70	1.24	Fail
205	Tl	2	209	69134.29	P	1115.00	1.61	Fail
208	Pb	2	209	96323.04	P	425.00	0.44	Fail
209	Bi	2	---	4398510.00	A	66790.00	1.52	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-3446.19	0.70	36.77	-9372.4	70 - 120	ISFail
45	Sc	1	154506.55	1.14	157844.06	97.9	70 - 120	
45	Sc	2	5765751.50	1.70	5827273.50	98.9	70 - 120	
72	Ge	1	84879.22	0.89	86621.49	98.0	70 - 120	
115	In	2	6293745.50	1.48	6276207.00	100.3	70 - 120	
209	Bi	2	4398510.00	1.52	4446753.50	98.9	70 - 120	

Calibration Standard QC Report

Acq. Method: DHL_3Fe.M Sample Name: 10X-160810
Operator: KL Instrument: ICPMS3
Date Acquired: Aug 10 2016 11:41 am
Last Cal. Update: Aug 10 2016 11:39 am

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)	Flag
6	Li	2	---	-16925.15	P	124.60	0.74	ISFail
7	Li	2	45	363170.19	P	5760.00	1.59	Fail
9	Be	2	45	117723.50	P	715.80	0.61	Fail
11	B	2	45	97217.87	P	1719.00	1.77	Fail
23	Na	1	45	257709.59	P	4337.00	1.68	Fail
24	Mg	1	45	105580.90	P	1684.00	1.60	Fail
27	Al	1	45	26057.05	P	655.20	2.51	Fail
39	K	1	45	64147.34	P	1129.00	1.76	Fail
44	Ca	2	45	264485.91	P	4460.00	1.69	Fail
45	Sc	1	---	154967.59	P	449.70	0.29	
45	Sc	2	---	5754845.00	A	82050.00	1.43	
47	Ti	1	45	1117.40	P	25.75	2.30	Fail
51	V	1	45	45041.05	P	864.60	1.92	Fail
51	V	2	---		P			
52	Cr	1	45	59896.97	P	1879.00	3.14	Fail
55	Mn	1	45	24399.85	P	828.30	3.39	Fail
56	Fe	1	72	918985.88	A	47070.00	5.12	Fail
59	Co	1	72	103000.50	P	1801.00	1.75	
60	Ni	1	72	29999.42	P	917.90	3.06	
60	Ni	2	---		P			
63	Cu	1	72	82424.35	P	2167.00	2.63	Fail
63	Cu	2	---		P			
66	Zn	1	72	8729.45	P	386.50	4.43	Fail
66	Zn	2	---		P			
72	Ge	1	---	84495.81	P	565.10	0.67	
72	Ge	2	---		A			
75	As	1	72	5056.71	P	165.10	3.27	Fail
78	Se	1	72	309.67	P	5.15	1.66	Fail
88	Sr	2	115	517301.50	P	9021.00	1.74	Fail
95	Mo	2	115	91068.24	P	806.60	0.89	Fail
107	Ag	2	115	235191.09	P	2666.00	1.13	Fail
111	Cd	2	115	51361.26	P	669.30	1.30	Fail
115	In	2	---	6274154.00	A	77530.00	1.24	
118	Sn	2	115	137732.20	P	2102.00	1.53	Fail
121	Sb	2	115	161537.70	P	2133.00	1.32	Fail
137	Ba	2	115	61993.64	P	752.70	1.21	Fail
205	Tl	2	209	348700.09	P	5832.00	1.67	Fail
208	Pb	2	209	482299.50	P	6717.00	1.39	Fail
209	Bi	2	---	4385129.00	A	23640.00	0.54	

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2		-16925.15	0.74	36.77	-46030.3	70 -	120	ISFail
45	Sc	1		154967.56	0.29	157844.06	98.2	70 -	120	
45	Sc	2		5754844.50	1.43	5827273.50	98.8	70 -	120	
72	Ge	1		84495.81	0.67	86621.49	97.5	70 -	120	
115	In	2		6274154.50	1.24	6276207.00	100.0	70 -	120	
209	Bi	2		4385129.50	0.54	4446753.50	98.6	70 -	120	

Calibration Standard QC Report

Acq. Method: DHL_3Fe.M Sample Name: 5X-160810
Operator: KL Instrument: ICPMS3
Date Acquired: Aug 10 2016 11:47 am
Last Cal. Update: Aug 10 2016 11:45 am

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)	Flag
6	Li	2	---	-33999.55	P	841.10	2.47	ISFail
7	Li	2	45	724475.31	A	12440.00	1.72	Fail
9	Be	2	45	233784.20	P	2832.00	1.21	Fail
11	B	2	45	189854.91	P	3998.00	2.11	Fail
23	Na	1	45	498223.19	P	7132.00	1.43	Fail
24	Mg	1	45	211925.09	P	7472.00	3.53	Fail
27	Al	1	45	51322.30	P	1710.00	3.33	Fail
39	K	1	45	122943.10	P	512.20	0.42	Fail
44	Ca	2	45	512646.09	P	13140.00	2.56	Fail
45	Sc	1	---	152689.30	P	624.80	0.41	
45	Sc	2	---	5611635.00	A	96700.00	1.72	
47	Ti	1	45	2242.46	P	83.24	3.71	Fail
51	V	1	45	89126.53	P	2011.00	2.26	Fail
51	V	2	---		A			
52	Cr	1	45	119844.20	P	3672.00	3.06	
55	Mn	1	45	48634.02	P	1452.00	2.99	
56	Fe	1	72	1817413.00	A	40580.00	2.23	Fail
59	Co	1	72	204377.70	P	4944.00	2.42	
60	Ni	1	72	59600.60	P	1530.00	2.57	
60	Ni	2	---		P			
63	Cu	1	72	162708.41	P	3612.00	2.22	
63	Cu	2	---		P			
66	Zn	1	72	17136.57	P	316.90	1.85	Fail
66	Zn	2	---		P			
72	Ge	1	---	82968.47	P	313.80	0.38	
72	Ge	2	---		A			
75	As	1	72	9928.12	P	226.30	2.28	Fail
78	Se	1	72	618.24	P	13.49	2.18	Fail
88	Sr	2	115	1064290.00	A	19210.00	1.81	Fail
95	Mo	2	115	177487.50	P	2170.00	1.22	Fail
107	Ag	2	115	462284.91	P	5678.00	1.23	Fail
111	Cd	2	115	100039.20	P	1639.00	1.64	Fail
115	In	2	---	6104971.00	A	98290.00	1.61	
118	Sn	2	115	270212.81	P	3858.00	1.43	Fail
121	Sb	2	115	319318.19	P	3214.00	1.01	Fail
137	Ba	2	115	122455.10	P	1212.00	0.99	Fail
205	Tl	2	209	696208.88	P	7814.00	1.12	Fail
208	Pb	2	209	951484.69	P	8998.00	0.95	Fail
209	Bi	2	---	4305669.00	A	50180.00	1.17	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-33999.56	2.47	36.77	-92466.5	70 - 120	ISFail
45	Sc	1	152689.34	0.41	157844.06	96.7	70 - 120	
45	Sc	2	5611634.50	1.72	5827273.50	96.3	70 - 120	
72	Ge	1	82968.48	0.38	86621.49	95.8	70 - 120	
115	In	2	6104970.50	1.61	6276207.00	97.3	70 - 120	
209	Bi	2	4305669.00	1.17	4446753.50	96.8	70 - 120	

Calibration Standard QC Report

Acq. Method: DHL_3Fe.M Sample Name: 2X-160810
Operator: KL Instrument: ICPMS3
Date Acquired: Aug 10 2016 11:53 am
Last Cal. Update: Aug 10 2016 11:51 am

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)	Flag
6	Li	2	---	-79656.35	P	1985.00	2.49	ISFail
7	Li	2	45	1732888.00	A	28500.00	1.64	Fail
9	Be	2	45	571237.31	P	5775.00	1.01	Fail
11	B	2	45	454411.09	P	3383.00	0.74	Fail
23	Na	1	45	1251735.00	A	25840.00	2.06	Fail
24	Mg	1	45	519337.31	P	15240.00	2.93	
27	Al	1	45	126975.90	P	4337.00	3.42	Fail
39	K	1	45	298749.31	P	3502.00	1.17	Fail
44	Ca	2	45	1286593.00	A	26640.00	2.07	Fail
45	Sc	1	---	152296.50	P	633.40	0.42	
45	Sc	2	---	5472111.00	A	64810.00	1.18	
47	Ti	1	45	5645.38	P	148.10	2.62	
51	V	1	45	219021.59	P	5335.00	2.44	
51	V	2	---		A			
52	Cr	1	45	291330.81	P	7197.00	2.47	
55	Mn	1	45	118984.90	P	3218.00	2.70	
56	Fe	1	72	4350439.00	A	117800.00	2.71	
59	Co	1	72	497496.00	P	11230.00	2.26	
60	Ni	1	72	143370.30	P	3172.00	2.21	
60	Ni	2	---		P			
63	Cu	1	72	391464.50	P	8876.00	2.27	
63	Cu	2	---		A			
66	Zn	1	72	41493.13	P	965.10	2.33	Fail
66	Zn	2	---		P			
72	Ge	1	---	82448.43	P	478.20	0.58	
72	Ge	2	---		M			
75	As	1	72	24106.80	P	561.70	2.33	Fail
78	Se	1	72	1469.13	P	34.34	2.34	Fail
88	Sr	2	115	2507826.00	A	54600.00	2.18	Fail
95	Mo	2	115	427054.59	P	6922.00	1.62	Fail
107	Ag	2	115	1124659.00	A	11420.00	1.02	Fail
111	Cd	2	115	235766.20	P	4371.00	1.85	Fail
115	In	2	---	5818367.00	A	88790.00	1.53	
118	Sn	2	115	643320.31	P	11090.00	1.72	Fail
121	Sb	2	115	762252.69	P	10600.00	1.39	Fail
137	Ba	2	115	293872.69	P	3651.00	1.24	Fail
205	Tl	2	209	1768332.00	A	20360.00	1.15	Fail
208	Pb	2	209	2347279.00	A	23760.00	1.01	Fail
209	Bi	2	---	4163915.00	A	17870.00	0.43	

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2		-79656.36	2.49	36.77	-216636.5	70 -	120	ISFail
45	Sc	1		152296.45	0.42	157844.06	96.5	70 -	120	
45	Sc	2		5472111.50	1.18	5827273.50	93.9	70 -	120	
72	Ge	1		82448.43	0.58	86621.49	95.2	70 -	120	
115	In	2		5818367.50	1.53	6276207.00	92.7	70 -	120	
209	Bi	2		4163915.30	0.43	4446753.50	93.6	70 -	120	

Calibration Standard QC Report

Acq. Method: DHL_3Fe.M Sample Name: H-160810
Operator: KL Instrument: ICPMS3
Date Acquired: Aug 10 2016 11:59 am
Last Cal. Update: Aug 10 2016 11:57 am

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)	Flag
6	Li	2	---	-152111.80	P	1777.00	1.17	ISFail
7	Li	2	45	3354208.00	A	31470.00	0.94	Fail
9	Be	2	45	1074800.00	A	793.70	0.07	Fail
11	B	2	45	915593.81	A	4288.00	0.47	Fail
23	Na	1	45	2430604.00	A	37730.00	1.55	Fail
24	Mg	1	45	1071620.00	A	37510.00	3.50	
27	Al	1	45	253384.09	P	9365.00	3.70	Fail
39	K	1	45	592514.88	P	8144.00	1.37	Fail
44	Ca	2	45	2496344.00	A	25730.00	1.03	Fail
45	Sc	1	---	150944.70	P	592.40	0.39	
45	Sc	2	---	5370158.00	A	86780.00	1.62	
47	Ti	1	45	10957.01	P	481.60	4.40	
51	V	1	45	428728.59	P	12660.00	2.95	
51	V	2	---		A			
52	Cr	1	45	569223.88	P	14110.00	2.48	
55	Mn	1	45	235983.30	P	5414.00	2.29	
56	Fe	1	72	8429479.00	A	278300.00	3.30	
59	Co	1	72	998344.81	A	33180.00	3.32	
60	Ni	1	72	275846.41	P	5561.00	2.02	
60	Ni	2	---		M			
63	Cu	1	72	754637.31	P	15590.00	2.07	
63	Cu	2	---		A			
66	Zn	1	72	79187.46	P	1635.00	2.06	
66	Zn	2	---		P			
72	Ge	1	---	80473.09	P	435.80	0.54	
72	Ge	2	---		P			
75	As	1	72	46579.15	P	854.20	1.83	
78	Se	1	72	2850.22	P	71.20	2.50	
88	Sr	2	115	4732621.00	A	41080.00	0.87	Fail
95	Mo	2	115	825129.31	P	9393.00	1.14	Fail
107	Ag	2	115	2127568.00	A	11210.00	0.53	
111	Cd	2	115	445565.00	P	1737.00	0.39	Fail
115	In	2	---	5559739.00	A	40490.00	0.73	
118	Sn	2	115	1290863.00	A	17080.00	1.32	Fail
121	Sb	2	115	1494746.00	A	15710.00	1.05	Fail
137	Ba	2	115	565167.50	P	3596.00	0.64	Fail
205	Tl	2	209	3394220.00	A	5824.00	0.17	
208	Pb	2	209	4660657.00	A	31480.00	0.68	Fail
209	Bi	2	---	4057351.00	A	39750.00	0.98	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-152111.83	1.17	36.77	-413689.1	70 - 120	ISFail
45	Sc	1	150944.67	0.39	157844.06	95.6	70 - 120	
45	Sc	2	5370158.50	1.62	5827273.50	92.2	70 - 120	
72	Ge	1	80473.09	0.54	86621.49	92.9	70 - 120	
115	In	2	5559739.00	0.73	6276207.00	88.6	70 - 120	
209	Bi	2	4057350.80	0.98	4446753.50	91.2	70 - 120	

Calibration Standard QC Report

Acq. Method: DHL_3Fe.M Sample Name: H2-160810
Operator: KL Instrument: ICPMS3
Date Acquired: Aug 10 2016 12:05 pm
Last Cal. Update: Aug 10 2016 12:03 pm

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)	Flag
6	Li	2	---	-616473.50	P	2650.00	0.43	ISFail
7	Li	2	45	13670800.00	A	69170.00	0.51	Fail
9	Be	2	45	4122176.00	A	34070.00	0.83	
11	B	2	45	3637751.00	A	14700.00	0.40	Fail
23	Na	1	45	5869594.00	A	126000.00	2.15	Fail
24	Mg	1	45	2599353.00	A	70230.00	2.70	
27	Al	1	45	2474.95	P	94.59	3.82	Fail
39	K	1	45	1511420.00	A	38730.00	2.56	Fail
44	Ca	2	45	6139222.00	A	153100.00	2.49	Fail
45	Sc	1	---	151426.09	P	1263.00	0.83	
45	Sc	2	---	5420262.00	A	87790.00	1.62	
47	Ti	1	45	45931.27	P	1693.00	3.69	
51	V	1	45	1765041.00	A	66230.00	3.75	
51	V	2	---		A			
52	Cr	1	45	2302081.00	A	112900.00	4.90	
55	Mn	1	45	955336.69	A	56550.00	5.92	
56	Fe	1	72	17049.73	P	1483.00	8.70	Fail
59	Co	1	72	3812633.00	A	134700.00	3.53	
60	Ni	1	72	1114991.00	A	44920.00	4.03	
60	Ni	2	---		A			
63	Cu	1	72	2972362.00	A	103700.00	3.49	
63	Cu	2	---		A			
66	Zn	1	72	306760.41	P	8765.00	2.86	
66	Zn	2	---		A			
72	Ge	1	---	79885.80	P	592.50	0.74	
72	Ge	2	---		P			
75	As	1	72	185073.30	P	5638.00	3.05	
78	Se	1	72	11305.28	P	327.60	2.90	
88	Sr	2	115	19730250.00	A	255900.00	1.30	Fail
95	Mo	2	115	3543295.00	A	22830.00	0.64	
107	Ag	2	115	1420.19	P	265.60	18.70	Fail
111	Cd	2	115	1883541.00	A	8693.00	0.46	
115	In	2	---	5733262.00	A	40360.00	0.70	
118	Sn	2	115	5202843.00	A	38800.00	0.75	Fail
121	Sb	2	115	2048.06	P	294.40	14.38	Fail
137	Ba	2	115	2425181.00	A	32160.00	1.33	Fail
205	Tl	2	209	13437230.00	A	161800.00	1.20	
208	Pb	2	209	18304710.00	A	221400.00	1.21	
209	Bi	2	---	4035457.00	A	49250.00	1.22	

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2		-616473.56	0.43	36.77	#########	70 -	120	ISFail
45	Sc	1		151426.05	0.83	157844.06	95.9	70 -	120	
45	Sc	2		5420262.50	1.62	5827273.50	93.0	70 -	120	
72	Ge	1		79885.81	0.74	86621.49	92.2	70 -	120	
115	In	2		5733261.50	0.70	6276207.00	91.3	70 -	120	
209	Bi	2		4035457.00	1.22	4446753.50	90.8	70 -	120	

ICSA QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\016ICSA.D\016ICSA.D#

Date Acquired:	Aug 10 2016 12:23 pm	Sample Name:	**ICSA-160810**
Acq. Method:	DHL_3Fe.M	Misc Info:	ICSAICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 10 2016 01:05 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	RL S	RL Aq	Flag
7	Li	2	45	0.324	ppb	3.91	8.00	5.00	
9	Be	2	45	0.129	ppb	7.00	0.32	0.80	
11	B	2	45	8.018	ppb	0.60	30.00	30.00	
23	Na	1	45	101900.000	ppb	1.35	#######	#######	
24	Mg	1	45	87700.000	ppb	2.35	#######	#######	
27	Al	1	45	96110.000	ppb	2.66	#######	#######	
39	K	1	45	92240.000	ppb	1.02	#######	#######	
44	Ca	2	45	91140.000	ppb	1.71	#######	#######	
47	Ti	1	45	1925.000	ppb	2.62	10.00	10.00	
51	V	1	45	0.065	ppb	7.99	10.00	10.00	
52	Cr	1	45	0.957	ppb	4.25	8.00	5.00	
55	Mn	1	45	0.967	ppb	0.82	8.00	10.00	
56	Fe	1	72	93720.000	ppb	2.26	#######	#######	
59	Co	1	72	1.344	ppb	1.74	8.00	10.00	
60	Ni	1	72	0.525	ppb	4.30	8.00	10.00	
63	Cu	1	72	2.165	ppb	3.38	8.00	10.00	
66	Zn	1	72	2.336	ppb	5.77	10.00	5.00	
75	As	1	72	0.656	ppb	1.71	4.00	5.00	
78	Se	1	72	0.553	ppb	4.76	2.00	5.00	
88	Sr	2	115	1.198	ppb	3.12	10.00	10.00	
95	Mo	2	115	1975.000	ppb	1.13	8.00	5.00	
107	Ag	2	115	0.101	ppb	9.49	0.80	2.00	
111	Cd	2	115	0.332	ppb	11.93	1.20	1.00	
118	Sn	2	115	0.561	ppb	4.43	10.00	10.00	
121	Sb	2	115	0.160	ppb	7.02	4.00	2.50	
137	Ba	2	115	0.544	ppb	14.03	8.00	10.00	
205	Tl	2	209	0.274	ppb	7.24	4.00	1.50	
208	Pb	2	209	0.404	ppb	6.78	1.20	1.00	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-62.59	17.96	36.77	-170.2	70 - 120	ISFail
45	Sc	1	144664.08	0.15	157844.06	91.6	70 - 120	
45	Sc	2	5565209.50	2.13	5827273.50	95.5	70 - 120	
72	Ge	1	77422.91	0.57	86621.49	89.4	70 - 120	
115	In	2	5928991.50	1.45	6276207.00	94.5	70 - 120	
209	Bi	2	3705677.50	1.14	4446753.50	83.3	70 - 120	

ICS-AB QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\017ICSB.D\017ICSB.D#

Date Acquired:	Aug 10 2016 12:29 pm	Sample Name:	**ICSAB-160810**
Acq. Method:	DHL_3Fe.M	Misc Info:	ICSBICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 10 2016 01:05 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)			Flag
7	Li	2	45	0.23	ppb	8.75	---	80 -		120	
9	Be	2	45	0.05	ppb	30.48	---	80 -		120	
11	B	2	45	6.15	ppb	2.34	---	80 -		120	
23	Na	1	45	98370.00	ppb	1.62	100000.00	80 -		120	
24	Mg	1	45	90520.00	ppb	3.05	100000.00	80 -		120	
27	Al	1	45	95830.00	ppb	4.01	100000.00	80 -		120	
39	K	1	45	92790.00	ppb	2.12	100000.00	80 -		120	
44	Ca	2	45	93720.00	ppb	1.74	100000.00	80 -		120	
47	Ti	1	45	1970.00	ppb	3.17	---	80 -		120	
51	V	1	45	40.24	ppb	3.66	40.00	80 -		120	
52	Cr	1	45	21.23	ppb	3.64	20.00	80 -		120	
55	Mn	1	45	19.32	ppb	3.51	20.00	80 -		120	
56	Fe	1	72	94770.00	ppb	4.59	100000.00	80 -		120	
59	Co	1	72	40.68	ppb	3.40	40.00	80 -		120	
60	Ni	1	72	36.94	ppb	2.87	40.00	80 -		120	
63	Cu	1	72	20.18	ppb	2.83	20.00	80 -		120	
66	Zn	1	72	18.79	ppb	3.52	20.00	80 -		120	
75	As	1	72	20.15	ppb	2.11	20.00	80 -		120	
78	Se	1	72	19.24	ppb	9.13	20.00	80 -		120	
88	Sr	2	115	1.16	ppb	6.26	---	80 -		120	
95	Mo	2	115	2077.00	ppb	1.33	---	80 -		120	
107	Ag	2	115	18.45	ppb	1.32	20.00	80 -		120	
111	Cd	2	115	9.29	ppb	5.45	10.00	80 -		120	
118	Sn	2	115	0.54	ppb	14.11	---	80 -		120	
121	Sb	2	115	0.06	ppb	9.60	---	80 -		120	
137	Ba	2	115	0.51	ppb	5.35	---	80 -		120	
205	Tl	2	209	0.15	ppb	5.39	---	80 -		120	
208	Pb	2	209	0.37	ppb	9.16	---	80 -		120	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	-29.01	17.82	36.77	-78.9	70 -		120	ISFail
45	Sc	1	141553.92	0.22	157844.06	89.7	70 -		120	
45	Sc	2	5969840.50	1.76	5827273.50	102.4	70 -		120	
72	Ge	1	77063.06	0.73	86621.49	89.0	70 -		120	
115	In	2	6082927.00	0.62	6276207.00	96.9	70 -		120	
209	Bi	2	3667072.80	1.03	4446753.50	82.5	70 -		120	

CCV QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\020ICV.D\020ICV.D#

Date Acquired:	Aug 10 2016 12:47 pm	Sample Name:	**ICV1-160810**
Acq. Method:	DHL_3Fe.M	Misc Info:	ICV ICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 10 2016 01:05 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	133.60	ppb	1.77	100.00	90 -	110	133.6	Fail
9	Be	2	45	117.10	ppb	1.44	100.00	90 -	110	117.1	Fail
11	B	2	45	109.80	ppb	2.42	100.00	90 -	110	109.8	
23	Na	1	45	2852.00	ppb	3.97	2500.00	90 -	110	114.1	Fail
24	Mg	1	45	2602.00	ppb	4.03	2500.00	90 -	110	104.1	
27	Al	1	45	2335.00	ppb	3.14	2500.00	90 -	110	93.4	
39	K	1	45	2467.00	ppb	1.52	2500.00	90 -	110	98.7	
44	Ca	2	45	2546.00	ppb	3.83	2500.00	90 -	110	101.8	
47	Ti	1	45	99.15	ppb	3.69	100.00	90 -	110	99.2	
51	V	1	45	105.00	ppb	3.63	100.00	90 -	110	105.0	
52	Cr	1	45	109.70	ppb	3.70	100.00	90 -	110	109.7	
55	Mn	1	45	98.48	ppb	3.49	100.00	90 -	110	98.5	
56	Fe	1	72	2611.00	ppb	3.90	2500.00	90 -	110	104.4	
59	Co	1	72	106.50	ppb	2.97	100.00	90 -	110	106.5	
60	Ni	1	72	104.10	ppb	1.95	100.00	90 -	110	104.1	
63	Cu	1	72	106.20	ppb	2.29	100.00	90 -	110	106.2	
66	Zn	1	72	103.90	ppb	3.06	100.00	90 -	110	103.9	
75	As	1	72	101.00	ppb	1.70	100.00	90 -	110	101.0	
78	Se	1	72	93.51	ppb	2.87	100.00	90 -	110	93.5	
88	Sr	2	115	112.40	ppb	2.00	100.00	90 -	110	112.4	Fail
95	Mo	2	115	102.90	ppb	1.87	100.00	90 -	110	102.9	
107	Ag	2	115	101.20	ppb	1.60	100.00	90 -	110	101.2	
111	Cd	2	115	98.92	ppb	2.13	100.00	90 -	110	98.9	
118	Sn	2	115	96.57	ppb	1.44	100.00	90 -	110	96.6	
121	Sb	2	115	96.82	ppb	1.91	100.00	90 -	110	96.8	
137	Ba	2	115	94.41	ppb	1.87	100.00	90 -	110	94.4	
205	Tl	2	209	97.04	ppb	1.27	100.00	90 -	110	97.0	
208	Pb	2	209	97.52	ppb	1.65	100.00	90 -	110	97.5	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	-28291.06	4.87	36.77	-76941.5	70 -	120		ISFail
45	Sc	1	154570.78	0.40	157844.06	97.9	70 -	120		
45	Sc	2	6889101.50	2.78	5827273.50	118.2	70 -	120		
72	Ge	1	86927.37	0.80	86621.49	100.4	70 -	120		
115	In	2	6576274.50	1.50	6276207.00	104.8	70 -	120		
209	Bi	2	4138242.50	1.88	4446753.50	93.1	70 -	120		

CCV QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\022ICV.D\022ICV.D#

Date Acquired:	Aug 10 2016 12:59 pm	Sample Name:	**ICV1-160810**
Acq. Method:	DHL_3Fe.M	Misc Info:	ICV ICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 10 2016 01:05 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	134.50	ppb	1.34	100.00	90 -	110	134.5	Fail
9	Be	2	45	118.30	ppb	2.41	100.00	90 -	110	118.3	Fail
11	B	2	45	111.00	ppb	2.05	100.00	90 -	110	111.0	Fail
23	Na	1	45	2936.00	ppb	2.32	2500.00	90 -	110	117.4	Fail
24	Mg	1	45	2637.00	ppb	3.26	2500.00	90 -	110	105.5	
27	Al	1	45	2382.00	ppb	3.48	2500.00	90 -	110	95.3	
39	K	1	45	2493.00	ppb	2.20	2500.00	90 -	110	99.7	
44	Ca	2	45	2506.00	ppb	4.78	2500.00	90 -	110	100.2	
47	Ti	1	45	98.40	ppb	5.68	100.00	90 -	110	98.4	
51	V	1	45	105.20	ppb	3.66	100.00	90 -	110	105.2	
52	Cr	1	45	110.50	ppb	3.70	100.00	90 -	110	110.5	Fail
55	Mn	1	45	99.71	ppb	2.41	100.00	90 -	110	99.7	
56	Fe	1	72	2619.00	ppb	3.33	2500.00	90 -	110	104.8	
59	Co	1	72	107.90	ppb	2.61	100.00	90 -	110	107.9	
60	Ni	1	72	106.00	ppb	3.24	100.00	90 -	110	106.0	
63	Cu	1	72	107.40	ppb	2.83	100.00	90 -	110	107.4	
66	Zn	1	72	105.20	ppb	2.29	100.00	90 -	110	105.2	
75	As	1	72	102.40	ppb	2.09	100.00	90 -	110	102.4	
78	Se	1	72	95.97	ppb	4.28	100.00	90 -	110	96.0	
88	Sr	2	115	114.90	ppb	1.13	100.00	90 -	110	114.9	Fail
95	Mo	2	115	104.50	ppb	1.90	100.00	90 -	110	104.5	
107	Ag	2	115	101.80	ppb	1.48	100.00	90 -	110	101.8	
111	Cd	2	115	100.60	ppb	1.64	100.00	90 -	110	100.6	
118	Sn	2	115	97.71	ppb	2.23	100.00	90 -	110	97.7	
121	Sb	2	115	97.73	ppb	1.54	100.00	90 -	110	97.7	
137	Ba	2	115	96.22	ppb	1.82	100.00	90 -	110	96.2	
205	Tl	2	209	97.08	ppb	1.01	100.00	90 -	110	97.1	
208	Pb	2	209	97.68	ppb	1.35	100.00	90 -	110	97.7	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	-27573.77	2.48	36.77	-74990.7	70 -	120		ISFail
45	Sc	1	154283.36	0.69	157844.06	97.7	70 -	120		
45	Sc	2	6908818.00	2.71	5827273.50	118.6	70 -	120		
72	Ge	1	85934.37	1.11	86621.49	99.2	70 -	120		
115	In	2	6362271.00	1.52	6276207.00	101.4	70 -	120		
209	Bi	2	4051822.50	0.55	4446753.50	91.1	70 -	120		

CCV QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\023LCVL.D\023LCVL.D#

Date Acquired:	Aug 10 2016 01:05 pm	Sample Name:	**ILCVL-160810**
Acq. Method:	DHL_3Fe.M	Misc Info:	LCVLICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 10 2016 01:05 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	14.61	ppb	2.75	10.00	70 -	130	146.1	Fail
9	Be	2	45	1.28	ppb	2.90	1.00	70 -	130	127.9	
11	B	2	45	25.21	ppb	2.50	20.00	70 -	130	126.1	
23	Na	1	45	129.00	ppb	0.61	100.00	70 -	130	129.0	
24	Mg	1	45	107.70	ppb	3.02	100.00	70 -	130	107.7	
27	Al	1	45	100.70	ppb	2.97	100.00	70 -	130	100.7	
39	K	1	45	109.90	ppb	1.36	100.00	70 -	130	109.9	
44	Ca	2	45	96.93	ppb	2.01	100.00	70 -	130	96.9	
47	Ti	1	45	5.02	ppb	5.82	5.00	70 -	130	100.3	
51	V	1	45	1.12	ppb	3.78	1.00	70 -	130	111.8	
52	Cr	1	45	5.69	ppb	2.72	5.00	70 -	130	113.7	
55	Mn	1	45	5.13	ppb	2.54	5.00	70 -	130	102.6	
56	Fe	1	72	111.90	ppb	2.66	100.00	70 -	130	111.9	
59	Co	1	72	5.53	ppb	1.89	5.00	70 -	130	110.6	
60	Ni	1	72	5.53	ppb	5.77	5.00	70 -	130	110.5	
63	Cu	1	72	5.67	ppb	2.24	5.00	70 -	130	113.4	
66	Zn	1	72	5.15	ppb	3.33	5.00	70 -	130	103.0	
75	As	1	72	5.58	ppb	2.76	5.00	70 -	130	111.6	
78	Se	1	72	5.22	ppb	0.92	5.00	70 -	130	104.5	
88	Sr	2	115	5.73	ppb	1.29	5.00	70 -	130	114.7	
95	Mo	2	115	5.60	ppb	3.27	5.00	70 -	130	112.0	
107	Ag	2	115	2.18	ppb	3.09	2.00	70 -	130	108.9	
111	Cd	2	115	1.08	ppb	6.38	1.00	70 -	130	107.9	
118	Sn	2	115	5.10	ppb	1.76	5.00	70 -	130	102.0	
121	Sb	2	115	2.07	ppb	1.55	2.00	70 -	130	103.5	
137	Ba	2	115	4.79	ppb	2.65	5.00	70 -	130	95.8	
205	Tl	2	209	1.19	ppb	2.87	1.00	70 -	130	119.2	
208	Pb	2	209	1.10	ppb	1.09	1.00	70 -	130	109.7	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2 RHigl	-2938.40	6.35	36.77	-7991.4	70 -	120	ISFail
45	Sc	1	156003.47	1.14	157844.06	98.8	70 -	120	
45	Sc	2	6769750.50	2.03	5827273.50	116.2	70 -	120	
72	Ge	1	87067.64	1.39	86621.49	100.5	70 -	120	
115	In	2	6360994.00	1.47	6276207.00	101.4	70 -	120	
209	Bi	2	4069238.30	1.80	4446753.50	91.5	70 -	120	

ICB QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\024_ICB.D\024_ICB.D#

Date Acquired:	Aug 10 2016 01:11 pm	Sample Name:	**ICB1-160810**
Acq. Method:	DHL_3Fe.M	Misc Info:	ICB ICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 10 2016 01:05 pm	Instrument:	ICPMS3

QC Elements

Element				Conc.		RSD(%)	High Limit	Flag
7	Li	2	45	0.22	ppb	7.04	2.00	
9	Be	2	45	0.07	ppb	24.15	0.40	
11	B	2	45	2.98	ppb	1.41	10.00	
23	Na	1	45	13.00	ppb	1.57	50.00	
24	Mg	1	45	0.69	ppb	11.11	50.00	
27	Al	1	45	2.96	ppb	1.79	50.00	
39	K	1	45	3.15	ppb	0.94	50.00	
44	Ca	2	45	10.76	ppb	4.80	50.00	
47	Ti	1	45	0.08	ppb	41.67	4.00	
51	V	1	45	-0.02	ppb	10.93	4.00	
52	Cr	1	45	0.10	ppb	9.78	2.00	
55	Mn	1	45	0.08	ppb	18.10	2.00	
56	Fe	1	72	1.31	ppb	8.28	50.00	
59	Co	1	72	0.06	ppb	13.76	2.00	
60	Ni	1	72	0.07	ppb	3.94	2.00	
63	Cu	1	72	0.11	ppb	5.06	2.00	
66	Zn	1	72	-0.21	ppb	8.43	4.00	
75	As	1	72	0.20	ppb	4.65	2.00	
78	Se	1	72	0.30	ppb	17.09	0.60	
88	Sr	2	115	0.16	ppb	5.97	4.00	
95	Mo	2	115	0.14	ppb	12.66	2.00	
107	Ag	2	115	0.04	ppb	19.84	0.40	
111	Cd	2	115	0.04	ppb	25.93	0.40	
118	Sn	2	115	0.13	ppb	7.54	20.00	
121	Sb	2	115	0.06	ppb	1.40	2.00	
137	Ba	2	115	0.07	ppb	5.16	2.00	
205	Tl	2	209	0.14	ppb	2.98	2.00	
208	Pb	2	209	0.09	ppb	7.41	0.40	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2 RHig	-61.21	26.40	36.77	-166.5	70 - 120	ISFail
45	Sc	1	155618.23	0.74	157844.06	98.6	70 - 120	
45	Sc	2	6799310.00	2.24	5827273.50	116.7	70 - 120	
72	Ge	1	87826.74	0.71	86621.49	101.4	70 - 120	
115	In	2	6371903.50	1.57	6276207.00	101.5	70 - 120	
209	Bi	2	4064265.30	0.93	4446753.50	91.4	70 - 120	

DT QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\043DT1.D\043DT1.D#

Date Acquired:	Aug 10 2016 03:15 pm	Sample Name:	**1607294-09A SD**
Acq. Method:	DHL_3Fe.M	Misc Info:	SD ICPMS_TSDOD1
Operator:	KL	Bench Diln:	25.00
Last Cal. Update:	Aug 10 2016 01:05 pm	Auto Diln:	Undiluted
Instrument:	ICPMS3	Total Diln:	25.00

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	17.67	ppb	0.67	-3442.13	90 -	110	-2.6	
9	Be	2	45	0.63	ppb	5.02	3.02	90 -	110	104.6	GOOD
11	B	2	45	25.07	ppb	2.68	106.90	90 -	110	117.3	
23	Na	1	45	1108.00	ppb	2.04	5744.00	90 -	110	96.4	GOOD
24	Mg	1	45	3199.00	ppb	3.59	16290.00	90 -	110	98.2	GOOD
27	Al	1	45	13430.00	ppb	4.35	68890.00	90 -	110	97.5	GOOD
39	K	1	45	3067.00	ppb	2.18	15750.00	90 -	110	97.4	GOOD
44	Ca	2	45	31350.00	ppb	2.51	154000.00	90 -	110	101.8	GOOD
47	Ti	1	45	60.39	ppb	0.22	306.90	90 -	110	98.4	GOOD
51	V	1	45	21.52	ppb	3.32	107.30	90 -	110	100.3	GOOD
52	Cr	1	45	12.23	ppb	4.06	60.46	90 -	110	101.1	GOOD
55	Mn	1	45	155.30	ppb	3.77	754.20	90 -	110	103.0	GOOD
56	Fe	1	72	14020.00	ppb	3.33	69200.00	90 -	110	101.3	GOOD
59	Co	1	72	5.96	ppb	2.52	29.54	90 -	110	100.8	GOOD
60	Ni	1	72	9.41	ppb	2.69	45.75	90 -	110	102.9	GOOD
63	Cu	1	72	5.16	ppb	4.06	24.51	90 -	110	105.3	GOOD
66	Zn	1	72	47.56	ppb	2.56	211.80	90 -	110	112.3	
75	As	1	72	4.85	ppb	5.23	23.15	90 -	110	104.7	GOOD
78	Se	1	72	3.14	ppb	4.02	14.40	90 -	110	109.1	GOOD
88	Sr	2	115	96.76	ppb	1.78	478.00	90 -	110	101.2	GOOD
95	Mo	2	115	0.38	ppb	4.93	1.68	90 -	110	112.2	
107	Ag	2	115	0.06	ppb	11.28	0.26	90 -	110	122.3	
111	Cd	2	115	0.23	ppb	22.85	1.10	90 -	110	107.0	GOOD
118	Sn	2	115	2.05	ppb	2.56	10.12	90 -	110	101.1	GOOD
121	Sb	2	115	0.26	ppb	5.34	1.06	90 -	110	120.7	
137	Ba	2	115	109.00	ppb	1.17	554.80	90 -	110	98.2	GOOD
205	Tl	2	209	0.19	ppb	3.15	0.75	90 -	110	127.9	
208	Pb	2	209	14.31	ppb	1.47	73.78	90 -	110	97.0	GOOD

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	-3442.13	2.67	36.77	-9361.4	70 -	120	ISFail
45	Sc	1	167941.36	1.05	157844.06	106.4	70 -	120	
45	Sc	2	6425786.00	2.77	5827273.50	110.3	70 -	120	
72	Ge	1	90857.88	0.63	86621.49	104.9	70 -	120	
115	In	2	6501785.50	1.17	6276207.00	103.6	70 -	120	
209	Bi	2	4224544.50	0.83	4446753.50	95.0	70 -	120	

PDS QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\044_PDS.D\044_PDS.D#

Date Acquired:	Aug 10 2016 03:21 pm	Sample Name:	**1607294-09A PDS**
Acq. Method:	DHL_3Fe.M	Misc Info:	PDS ICPMS_TSDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	Aug 10 2016 01:05 pm	Auto Diln:	Undiluted
Instrument:	ICPMS3	Total Diln:	5.00

QC Elements

Element				Conc.		RSD(%)	Ref Conc	Spike	Range	Rec(%)	Flag
7	Li	2	45	311.80	ppb	1.92	-60184.45	200	75-125	######	Fail
9	Be	2	45	206.40	ppb	0.78	3.02	200	75-125	101.7	
11	B	2	45	301.70	ppb	2.04	106.90	200	75-125	97.4	
23	Na	1	45	10690.00	ppb	2.12	5744.00	5000	75-125	98.9	
24	Mg	1	45	21310.00	ppb	1.66	16290.00	5000	75-125	100.4	
27	Al	1	45	74800.00	ppb	3.52	68890.00	5000	75-125	118.2	
39	K	1	45	21050.00	ppb	1.55	15750.00	5000	75-125	106.0	
44	Ca	2	45	160900.00	ppb	2.03	154000.00	5000	75-125	138.0	Fail
47	Ti	1	45	517.00	ppb	3.24	306.90	200	75-125	105.1	
51	V	1	45	304.10	ppb	2.59	107.30	200	75-125	98.4	
52	Cr	1	45	256.80	ppb	2.89	60.46	200	75-125	98.2	
55	Mn	1	45	957.20	ppb	2.89	754.20	200	75-125	101.5	
56	Fe	1	72	76080.00	ppb	3.07	69200.00	5000	75-125	137.6	Fail
59	Co	1	72	224.30	ppb	2.19	29.54	200	75-125	97.4	
60	Ni	1	72	232.30	ppb	1.94	45.75	200	75-125	93.3	
63	Cu	1	72	208.20	ppb	1.95	24.51	200	75-125	91.8	
66	Zn	1	72	392.40	ppb	2.48	211.80	200	75-125	90.3	
75	As	1	72	210.90	ppb	1.84	23.15	200	75-125	93.9	
78	Se	1	72	189.90	ppb	1.84	14.40	200	75-125	87.8	
88	Sr	2	115	687.50	ppb	1.81	478.00	200	75-125	104.8	
95	Mo	2	115	198.50	ppb	2.02	1.68	200	75-125	98.4	
107	Ag	2	115	182.20	ppb	1.62	0.26	200	75-125	91.0	
111	Cd	2	115	180.60	ppb	1.43	1.10	200	75-125	89.8	
118	Sn	2	115	203.00	ppb	1.16	10.12	200	75-125	96.4	
121	Sb	2	115	186.30	ppb	1.41	1.06	200	75-125	92.6	
137	Ba	2	115	786.40	ppb	1.88	554.80	200	75-125	115.8	
205	Tl	2	209	207.30	ppb	2.69	0.75	200	75-125	103.3	
208	Pb	2	209	274.40	ppb	1.40	73.78	200	75-125	100.3	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-60184.45	3.06	36.77	-163679.9	70 - 120	ISFail
45	Sc	1	161731.20	0.42	157844.06	102.5	70 - 120	
45	Sc	2	6242884.50	1.83	5827273.50	107.1	70 - 120	
72	Ge	1	85202.16	0.59	86621.49	98.4	70 - 120	
115	In	2	6248320.00	1.23	6276207.00	99.6	70 - 120	
209	Bi	2	3872849.50	1.06	4446753.50	87.1	70 - 120	

MS/MSD QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\045_MS.D\045_MS.D#

Date Acquired:	Aug 10 2016 03:27 pm	Sample Name:	**1607294-09A MS**
Acq. Method:	DHL_3Fe.M	Misc Info:	MS ICPMS_TSDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	Aug 10 2016 01:05 pm	Auto Diln:	Undiluted
Instrument:	ICPMS3	Total Diln:	5.00

QC Elements

Element				Conc.		RSD(%)	Ref Conc	Spike	Range	Rec(%)	Flag
7	Li	2	45	320.30	ppb	1.68	########	200	80-120	######	Fail
9	Be	2	45	209.00	ppb	1.44	3.02	200	80-120	103.0	
11	B	2	45	309.50	ppb	2.09	106.90	200	80-120	101.3	
23	Na	1	45	10620.00	ppb	2.74	5744.00	5000	80-120	97.5	
24	Mg	1	45	21610.00	ppb	2.64	16290.00	5000	80-120	106.4	
27	Al	1	45	75510.00	ppb	3.29	68890.00	1000	80-120	662.0	Fail
39	K	1	45	21650.00	ppb	1.40	15750.00	5000	80-120	118.0	
44	Ca	2	45	165200.00	ppb	2.55	########	5000	80-120	224.0	Fail
47	Ti	1	45	638.50	ppb	3.67	306.90	200	80-120	165.8	Fail
51	V	1	45	314.40	ppb	2.24	107.30	200	80-120	103.6	
52	Cr	1	45	258.20	ppb	2.85	60.46	200	80-120	98.9	
55	Mn	1	45	1070.00	ppb	2.89	754.20	200	80-120	157.9	Fail
56	Fe	1	72	70900.00	ppb	2.58	69200.00	1000	80-120	170.0	Fail
59	Co	1	72	233.20	ppb	2.39	29.54	200	80-120	101.8	
60	Ni	1	72	241.40	ppb	1.90	45.75	200	80-120	97.8	
63	Cu	1	72	216.40	ppb	2.40	24.51	200	80-120	95.9	
66	Zn	1	72	409.10	ppb	2.15	211.80	200	80-120	98.7	
75	As	1	72	214.30	ppb	1.99	23.15	200	80-120	95.6	
78	Se	1	72	194.20	ppb	2.70	14.40	200	80-120	89.9	
88	Sr	2	115	730.10	ppb	1.81	478.00	200	80-120	126.1	Fail
95	Mo	2	115	192.00	ppb	2.07	1.68	200	80-120	95.2	
107	Ag	2	115	184.30	ppb	1.96	0.26	200	80-120	92.0	
111	Cd	2	115	187.50	ppb	2.04	1.10	200	80-120	93.2	
118	Sn	2	115	201.60	ppb	1.80	10.12	200	80-120	95.7	
121	Sb	2	115	46.66	ppb	1.66	1.06	200	80-120	22.8	Fail
137	Ba	2	115	822.10	ppb	1.09	554.80	200	80-120	133.7	Fail
205	Tl	2	209	216.70	ppb	1.33	0.75	200	80-120	108.0	
208	Pb	2	209	297.70	ppb	1.32	73.78	200	80-120	112.0	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	-95289.85	2.05	36.77	########	70	-	120	ISFail
45	Sc	1	161990.89	0.39	157844.06	102.6	70	-	120	
45	Sc	2	6354399.50	1.98	5827273.50	109.0	70	-	120	
72	Ge	1	85002.87	0.15	86621.49	98.1	70	-	120	
115	In	2	6244975.00	0.98	6276207.00	99.5	70	-	120	
209	Bi	2	3860573.30	1.91	4446753.50	86.8	70	-	120	

MS/MSD QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\046_MS.D\046_MS.D#

Date Acquired:	Aug 10 2016 03:32 pm	Sample Name:	**1607294-09A MSD**
Acq. Method:	DHL_3Fe.M	Misc Info:	MSD ICPMS_TSDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	Aug 10 2016 01:05 pm	Auto Diln:	Undiluted
Instrument:	ICPMS3	Total Diln:	5.00

QC Elements

Element				Conc.		RSD(%)	Ref Conc	Spike	Range	Rec(%)	Flag
7	Li	2	45	312.20	ppb	1.49	########	200	80-120	######	Fail
9	Be	2	45	203.50	ppb	1.46	3.02	200	80-120	100.2	
11	B	2	45	298.50	ppb	2.84	106.90	200	80-120	95.8	
23	Na	1	45	10280.00	ppb	1.62	5744.00	5000	80-120	90.7	
24	Mg	1	45	21290.00	ppb	2.36	16290.00	5000	80-120	100.0	
27	Al	1	45	74270.00	ppb	3.50	68890.00	1000	80-120	538.0	Fail
39	K	1	45	21080.00	ppb	1.97	15750.00	5000	80-120	106.6	
44	Ca	2	45	165000.00	ppb	2.64	########	5000	80-120	220.0	Fail
47	Ti	1	45	612.00	ppb	2.89	306.90	200	80-120	152.6	Fail
51	V	1	45	305.30	ppb	2.64	107.30	200	80-120	99.0	
52	Cr	1	45	254.00	ppb	2.37	60.46	200	80-120	96.8	
55	Mn	1	45	972.80	ppb	1.68	754.20	200	80-120	109.3	
56	Fe	1	72	67340.00	ppb	2.60	69200.00	1000	80-120	-186.0	Fail
59	Co	1	72	222.70	ppb	2.38	29.54	200	80-120	96.6	
60	Ni	1	72	231.60	ppb	1.69	45.75	200	80-120	92.9	
63	Cu	1	72	212.70	ppb	1.58	24.51	200	80-120	94.1	
66	Zn	1	72	393.80	ppb	2.18	211.80	200	80-120	91.0	
75	As	1	72	209.20	ppb	1.73	23.15	200	80-120	93.0	
78	Se	1	72	189.00	ppb	0.80	14.40	200	80-120	87.3	
88	Sr	2	115	709.60	ppb	1.17	478.00	200	80-120	115.8	
95	Mo	2	115	187.20	ppb	1.49	1.68	200	80-120	92.8	
107	Ag	2	115	180.10	ppb	1.76	0.26	200	80-120	89.9	
111	Cd	2	115	183.60	ppb	1.33	1.10	200	80-120	91.3	
118	Sn	2	115	196.20	ppb	1.67	10.12	200	80-120	93.0	
121	Sb	2	115	46.51	ppb	0.98	1.06	200	80-120	22.7	Fail
137	Ba	2	115	841.70	ppb	1.93	554.80	200	80-120	143.5	Fail
205	Tl	2	209	209.20	ppb	1.44	0.75	200	80-120	104.2	
208	Pb	2	209	449.40	ppb	1.59	73.78	200	80-120	187.8	Fail

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	-92929.43	1.73	36.77	########	70	-	120	ISFail
45	Sc	1	162675.55	0.34	157844.06	103.1	70	-	120	
45	Sc	2	6371595.50	2.53	5827273.50	109.3	70	-	120	
72	Ge	1	85552.65	0.42	86621.49	98.8	70	-	120	
115	In	2	6269330.50	1.45	6276207.00	99.9	70	-	120	
209	Bi	2	3864451.30	0.22	4446753.50	86.9	70	-	120	

CCV QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\047CCV1.D\047CCV1.D#

Date Acquired:	Aug 10 2016 03:38 pm	Sample Name:	**CCV1-160810**
Acq. Method:	DHL_3Fe.M	Misc Info:	CCV ICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 10 2016 01:05 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	241.10	ppb	1.13	200.00	90 -	110	120.6	Fail
9	Be	2	45	223.20	ppb	1.61	200.00	90 -	110	111.6	Fail
11	B	2	45	215.00	ppb	1.77	200.00	90 -	110	107.5	
23	Na	1	45	5548.00	ppb	2.20	5000.00	90 -	110	111.0	Fail
24	Mg	1	45	5207.00	ppb	3.25	5000.00	90 -	110	104.1	
27	Al	1	45	5100.00	ppb	2.79	5000.00	90 -	110	102.0	
39	K	1	45	5194.00	ppb	1.43	5000.00	90 -	110	103.9	
44	Ca	2	45	5420.00	ppb	1.25	5000.00	90 -	110	108.4	
47	Ti	1	45	196.70	ppb	3.09	200.00	90 -	110	98.4	
51	V	1	45	201.50	ppb	3.17	200.00	90 -	110	100.8	
52	Cr	1	45	204.50	ppb	3.38	200.00	90 -	110	102.3	
55	Mn	1	45	203.50	ppb	2.69	200.00	90 -	110	101.8	
56	Fe	1	72	5141.00	ppb	2.74	5000.00	90 -	110	102.8	
59	Co	1	72	207.60	ppb	2.42	200.00	90 -	110	103.8	
60	Ni	1	72	202.90	ppb	2.01	200.00	90 -	110	101.5	
63	Cu	1	72	208.60	ppb	2.56	200.00	90 -	110	104.3	
66	Zn	1	72	206.60	ppb	2.37	200.00	90 -	110	103.3	
75	As	1	72	206.20	ppb	2.07	200.00	90 -	110	103.1	
78	Se	1	72	206.20	ppb	2.68	200.00	90 -	110	103.1	
88	Sr	2	115	217.70	ppb	2.16	200.00	90 -	110	108.9	
95	Mo	2	115	209.50	ppb	1.57	200.00	90 -	110	104.8	
107	Ag	2	115	209.40	ppb	2.11	200.00	90 -	110	104.7	
111	Cd	2	115	202.30	ppb	1.64	200.00	90 -	110	101.2	
118	Sn	2	115	198.00	ppb	1.44	200.00	90 -	110	99.0	
121	Sb	2	115	195.30	ppb	1.32	200.00	90 -	110	97.7	
137	Ba	2	115	195.20	ppb	1.42	200.00	90 -	110	97.6	
205	Tl	2	209	212.10	ppb	0.60	200.00	90 -	110	106.1	
208	Pb	2	209	203.70	ppb	2.11	200.00	90 -	110	101.9	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	-86652.00	1.66	36.77	-235662.1	70 -	120		ISFail
45	Sc	1	165486.64	0.45	157844.06	104.8	70 -	120		
45	Sc	2	6574466.00	1.93	5827273.50	112.8	70 -	120		
72	Ge	1	89509.84	0.83	86621.49	103.3	70 -	120		
115	In	2	6334299.00	1.68	6276207.00	100.9	70 -	120		
209	Bi	2	4137339.50	1.24	4446753.50	93.0	70 -	120		

CCV QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\049LCVL.D\049LCVL.D#

Date Acquired:	Aug 10 2016 03:50 pm	Sample Name:	**LCVL1-160810**
Acq. Method:	DHL_3Fe.M	Misc Info:	LCVLICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 10 2016 01:05 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	12.59	ppb	2.24	10.00	70 -	130	125.9	
9	Be	2	45	1.21	ppb	1.93	1.00	70 -	130	120.5	
11	B	2	45	24.99	ppb	1.26	20.00	70 -	130	125.0	
23	Na	1	45	113.70	ppb	0.51	100.00	70 -	130	113.7	
24	Mg	1	45	110.40	ppb	2.96	100.00	70 -	130	110.4	
27	Al	1	45	112.80	ppb	2.26	100.00	70 -	130	112.8	
39	K	1	45	114.80	ppb	2.42	100.00	70 -	130	114.8	
44	Ca	2	45	115.50	ppb	3.16	100.00	70 -	130	115.5	
47	Ti	1	45	5.35	ppb	13.35	5.00	70 -	130	106.9	
51	V	1	45	1.03	ppb	3.39	1.00	70 -	130	103.0	
52	Cr	1	45	5.21	ppb	3.79	5.00	70 -	130	104.2	
55	Mn	1	45	5.28	ppb	2.21	5.00	70 -	130	105.6	
56	Fe	1	72	114.70	ppb	1.09	100.00	70 -	130	114.7	
59	Co	1	72	5.25	ppb	3.47	5.00	70 -	130	104.9	
60	Ni	1	72	5.31	ppb	5.53	5.00	70 -	130	106.1	
63	Cu	1	72	5.26	ppb	3.88	5.00	70 -	130	105.2	
66	Zn	1	72	6.64	ppb	20.26	5.00	70 -	130	132.8	Fail
75	As	1	72	5.28	ppb	0.98	5.00	70 -	130	105.6	
78	Se	1	72	5.51	ppb	10.53	5.00	70 -	130	110.2	
88	Sr	2	115	5.36	ppb	2.52	5.00	70 -	130	107.2	
95	Mo	2	115	5.22	ppb	3.41	5.00	70 -	130	104.4	
107	Ag	2	115	2.08	ppb	2.68	2.00	70 -	130	104.1	
111	Cd	2	115	1.12	ppb	5.91	1.00	70 -	130	111.5	
118	Sn	2	115	5.15	ppb	3.81	5.00	70 -	130	103.1	
121	Sb	2	115	2.04	ppb	1.61	2.00	70 -	130	102.0	
137	Ba	2	115	4.91	ppb	3.48	5.00	70 -	130	98.3	
205	Tl	2	209	1.15	ppb	1.21	1.00	70 -	130	114.9	
208	Pb	2	209	1.13	ppb	0.51	1.00	70 -	130	113.2	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	-2750.00	2.55	36.77	-7479.0	70 -	120	ISFail
45	Sc	1	166725.66	1.84	157844.06	105.6	70 -	120	
45	Sc	2	6332806.00	1.91	5827273.50	108.7	70 -	120	
72	Ge	1	90575.79	1.12	86621.49	104.6	70 -	120	
115	In	2	6233634.50	1.32	6276207.00	99.3	70 -	120	
209	Bi	2	4197759.50	1.54	4446753.50	94.4	70 -	120	

CCB QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\050_CCB.D\050_CCB.D#

Date Acquired:	Aug 10 2016 03:56 pm	Sample Name:	**CCB1-160810**
Acq. Method:	DHL_3Fe.M	Misc Info:	CCB ICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 10 2016 01:05 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	MDL S	MDL Aq	Flag
7	Li	2	45	0.177	ppb	1.13	2.00	2.00	
9	Be	2	45	0.037	ppb	11.06	0.40	0.30	
11	B	2	45	3.631	ppb	3.34	10.00	10.00	
23	Na	1	45	12.710	ppb	2.10	50.00	#####	
24	Mg	1	45	2.342	ppb	13.82	50.00	#####	
27	Al	1	45	10.340	ppb	3.32	50.00	10.00	FailAq
39	K	1	45	11.940	ppb	3.59	50.00	#####	
44	Ca	2	45	32.860	ppb	4.42	50.00	#####	
47	Ti	1	45	0.152	ppb	10.83	4.00	3.00	
51	V	1	45	0.013	ppb	12.91	4.00	3.00	
52	Cr	1	45	0.073	ppb	6.24	2.00	2.00	
55	Mn	1	45	0.122	ppb	8.70	2.00	3.00	
56	Fe	1	72	3.064	ppb	10.79	50.00	30.00	
59	Co	1	72	0.043	ppb	16.11	2.00	3.00	
60	Ni	1	72	0.135	ppb	7.66	2.00	3.00	
63	Cu	1	72	0.093	ppb	8.48	2.00	2.00	
66	Zn	1	72	1.139	ppb	11.47	4.00	2.00	
75	As	1	72	0.009	ppb	5.34	2.00	2.00	
78	Se	1	72	0.095	ppb	15.56	0.60	2.00	
88	Sr	2	115	0.143	ppb	8.35	4.00	3.00	
95	Mo	2	115	0.086	ppb	15.51	2.00	2.00	
107	Ag	2	115	0.037	ppb	4.28	0.40	1.00	
111	Cd	2	115	0.054	ppb	17.39	0.40	0.30	
118	Sn	2	115	0.163	ppb	4.08	20.00	3.00	
121	Sb	2	115	0.074	ppb	17.96	2.00	0.80	
137	Ba	2	115	0.130	ppb	15.86	2.00	3.00	
205	Tl	2	209	0.128	ppb	2.33	2.00	0.50	
208	Pb	2	209	0.089	ppb	8.91	0.40	0.30	

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	RHigh	-47.78	21.45	36.77	-129.9	70 - 120	ISFail
45	Sc	1		167009.52	1.37	157844.06	105.8	70 - 120	
45	Sc	2		6290814.50	2.41	5827273.50	108.0	70 - 120	
72	Ge	1		91555.22	1.43	86621.49	105.7	70 - 120	
115	In	2		6177034.50	1.10	6276207.00	98.4	70 - 120	
209	Bi	2		4190757.50	0.64	4446753.50	94.2	70 - 120	

PB QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\051__PB.D\051__PB.D#

Date Acquired:	Aug 10 2016 04:02 pm	Sample Name:	**MB-76690**
Acq. Method:	DHL_3Fe.M	Misc Info:	MBLKICPMS_TSDOD
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	Aug 10 2016 01:05 pm	Auto Dil:	Undiluted
Instrument:	ICPMS3	Total Dil:	5.00

QC Elements

Element				Conc.		RSD(%)	MDL	RL	Flag
7	Li	2	45	0.119	ppb	4.77	2.0	8.00	
9	Be	2	45	0.014	ppb	47.95	0.4	1.20	
11	B	2	45	2.606	ppb	2.41	10.0	30.00	
23	Na	1	45	20.670	ppb	0.64	50.0	#####	
24	Mg	1	45	10.690	ppb	4.06	50.0	#####	
27	Al	1	45	5.007	ppb	9.19	50.0	#####	
39	K	1	45	25.440	ppb	1.00	50.0	#####	
44	Ca	2	45	41.360	ppb	5.44	50.0	#####	
47	Ti	1	45	0.042	ppb	45.83	4.0	10.00	
51	V	1	45	-0.030	ppb	10.26	4.0	10.00	
52	Cr	1	45	0.206	ppb	5.90	2.0	8.00	
55	Mn	1	45	0.143	ppb	14.00	2.0	8.00	
56	Fe	1	72	4.339	ppb	11.28	50.0	#####	
59	Co	1	72	0.006	ppb	20.09	2.0	8.00	
60	Ni	1	72	0.143	ppb	14.62	2.0	8.00	
63	Cu	1	72	0.138	ppb	3.20	2.0	8.00	
66	Zn	1	72	2.386	ppb	5.38	4.0	10.00	
75	As	1	72	0.017	ppb	0.99	2.0	4.00	
78	Se	1	72	0.082	ppb	18.60	0.6	2.00	
88	Sr	2	115	0.092	ppb	7.61	4.0	10.00	
95	Mo	2	115	0.049	ppb	12.64	2.0	8.00	
107	Ag	2	115	0.013	ppb	12.08	0.4	0.80	
111	Cd	2	115	0.003	ppb	7.86	0.4	1.20	
118	Sn	2	115	4.467	ppb	2.30	20.0	40.00	
121	Sb	2	115	0.038	ppb	15.93	2.0	4.00	
137	Ba	2	115	0.053	ppb	14.34	2.0	8.00	
205	Tl	2	209	0.081	ppb	6.28	2.0	4.00	
208	Pb	2	209	0.083	ppb	8.37	0.4	1.20	

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	RHig	-31.47	51.25	36.77	-85.6	70 - 120	ISFail
45	Sc	1		171408.14	0.73	157844.06	108.6	70 - 120	
45	Sc	2		6442825.50	2.04	5827273.50	110.6	70 - 120	
72	Ge	1		91171.99	1.42	86621.49	105.3	70 - 120	
115	In	2		6212227.50	1.89	6276207.00	99.0	70 - 120	
209	Bi	2		4269142.00	1.10	4446753.50	96.0	70 - 120	

LCS QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\052_LCS.D\052_LCS.D#

Date Acquired:	Aug 10 2016 04:08 pm	Sample Name:	**LCS-76690**
Acq. Method:	DHL_3Fe.M	Misc Info:	LCS ICPMS_TSDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	Aug 10 2016 01:05 pm	Auto Dil:	Undiluted
Instrument:	ICPMS3	Total Dil:	5.00

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	238.30	ppb	1.16	200.00	80 -	120	119.2	
9	Be	2	45	215.70	ppb	1.51	200.00	80 -	120	107.9	
11	B	2	45	212.80	ppb	1.34	200.00	80 -	120	106.4	
23	Na	1	45	5347.00	ppb	1.04	5000.00	80 -	120	106.9	
24	Mg	1	45	5044.00	ppb	2.31	5000.00	80 -	120	100.9	
27	Al	1	45	1006.00	ppb	3.94	1000.00	80 -	120	100.6	
39	K	1	45	5042.00	ppb	1.84	5000.00	80 -	120	100.8	
44	Ca	2	45	5210.00	ppb	2.02	5000.00	80 -	120	104.2	
47	Ti	1	45	200.90	ppb	3.31	200.00	80 -	120	100.5	
51	V	1	45	199.40	ppb	2.60	200.00	80 -	120	99.7	
52	Cr	1	45	200.50	ppb	2.87	200.00	80 -	120	100.3	
55	Mn	1	45	202.00	ppb	2.05	200.00	80 -	120	101.0	
56	Fe	1	72	1075.00	ppb	4.22	1000.00	80 -	120	107.5	
59	Co	1	72	208.90	ppb	3.12	200.00	80 -	120	104.5	
60	Ni	1	72	204.40	ppb	1.61	200.00	80 -	120	102.2	
63	Cu	1	72	207.30	ppb	2.17	200.00	80 -	120	103.7	
66	Zn	1	72	203.00	ppb	2.24	200.00	80 -	120	101.5	
75	As	1	72	198.40	ppb	2.63	200.00	80 -	120	99.2	
78	Se	1	72	193.20	ppb	3.40	200.00	80 -	120	96.6	
88	Sr	2	115	218.80	ppb	1.22	200.00	80 -	120	109.4	
95	Mo	2	115	209.20	ppb	1.62	200.00	80 -	120	104.6	
107	Ag	2	115	206.30	ppb	2.37	200.00	80 -	120	103.2	
111	Cd	2	115	197.90	ppb	2.37	200.00	80 -	120	99.0	
118	Sn	2	115	205.20	ppb	1.31	200.00	80 -	120	102.6	
121	Sb	2	115	190.30	ppb	1.54	200.00	80 -	120	95.2	
137	Ba	2	115	196.10	ppb	1.33	200.00	80 -	120	98.1	
205	Tl	2	209	213.90	ppb	1.14	200.00	80 -	120	107.0	
208	Pb	2	209	206.60	ppb	1.44	200.00	80 -	120	103.3	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	-86131.67	1.64	36.77	-234247.0	70 -	120	ISFail
45	Sc	1	172287.91	0.48	157844.06	109.2	70 -	120	
45	Sc	2	6365078.00	2.42	5827273.50	109.2	70 -	120	
72	Ge	1	90262.32	0.57	86621.49	104.2	70 -	120	
115	In	2	6101695.50	1.38	6276207.00	97.2	70 -	120	
209	Bi	2	4137535.00	0.92	4446753.50	93.0	70 -	120	

LCS QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\053_LCS.D\053_LCS.D#

Date Acquired:	Aug 10 2016 04:14 pm	Sample Name:	**LCSD-76690**
Acq. Method:	DHL_3Fe.M	Misc Info:	LCSDICPMS_TSDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	Aug 10 2016 01:05 pm	Auto Dil:	Undiluted
Instrument:	ICPMS3	Total Dil:	5.00

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	235.40	ppb	0.57	200.00	80 -	120	117.7	
9	Be	2	45	214.90	ppb	1.18	200.00	80 -	120	107.5	
11	B	2	45	211.80	ppb	1.00	200.00	80 -	120	105.9	
23	Na	1	45	5372.00	ppb	2.39	5000.00	80 -	120	107.4	
24	Mg	1	45	5104.00	ppb	1.91	5000.00	80 -	120	102.1	
27	Al	1	45	1034.00	ppb	3.47	1000.00	80 -	120	103.4	
39	K	1	45	5050.00	ppb	1.40	5000.00	80 -	120	101.0	
44	Ca	2	45	5249.00	ppb	1.72	5000.00	80 -	120	105.0	
47	Ti	1	45	203.10	ppb	4.79	200.00	80 -	120	101.6	
51	V	1	45	200.40	ppb	2.85	200.00	80 -	120	100.2	
52	Cr	1	45	201.00	ppb	2.73	200.00	80 -	120	100.5	
55	Mn	1	45	202.50	ppb	2.00	200.00	80 -	120	101.3	
56	Fe	1	72	1083.00	ppb	2.31	1000.00	80 -	120	108.3	
59	Co	1	72	208.20	ppb	2.42	200.00	80 -	120	104.1	
60	Ni	1	72	203.90	ppb	1.92	200.00	80 -	120	102.0	
63	Cu	1	72	207.30	ppb	1.74	200.00	80 -	120	103.7	
66	Zn	1	72	205.10	ppb	1.90	200.00	80 -	120	102.6	
75	As	1	72	199.70	ppb	1.50	200.00	80 -	120	99.9	
78	Se	1	72	195.60	ppb	1.60	200.00	80 -	120	97.8	
88	Sr	2	115	219.20	ppb	1.30	200.00	80 -	120	109.6	
95	Mo	2	115	209.90	ppb	1.67	200.00	80 -	120	105.0	
107	Ag	2	115	203.40	ppb	2.99	200.00	80 -	120	101.7	
111	Cd	2	115	198.30	ppb	1.39	200.00	80 -	120	99.2	
118	Sn	2	115	206.20	ppb	1.46	200.00	80 -	120	103.1	
121	Sb	2	115	191.20	ppb	1.17	200.00	80 -	120	95.6	
137	Ba	2	115	195.90	ppb	1.40	200.00	80 -	120	98.0	
205	Tl	2	209	214.00	ppb	1.33	200.00	80 -	120	107.0	
208	Pb	2	209	207.00	ppb	0.98	200.00	80 -	120	103.5	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	-81958.80	0.49	36.77	-222898.3	70 -	120	ISFail
45	Sc	1	172426.50	0.65	157844.06	109.2	70 -	120	
45	Sc	2	6187878.00	2.40	5827273.50	106.2	70 -	120	
72	Ge	1	90369.60	0.27	86621.49	104.3	70 -	120	
115	In	2	5997364.50	1.14	6276207.00	95.6	70 -	120	
209	Bi	2	4103592.80	1.06	4446753.50	92.3	70 -	120	

Sample QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\055AREF.D\055AREF.D#

Date Acquired:	Aug 10 2016 04:26 pm	Sample Name:	**1607314-03A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD1
Operator:	KL	Bench Diln:	5
Last Cal. Update:	Aug 10 2016 01:05 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	78.650	ppb	#REF!	0.39	2000.00	>RL
9	Be	2	45	2.872	ppb	#REF!	3.99	2000.00	>RL
11	B	2	45	81.550	ppb	#REF!	0.77	2000.00	>RL
23	Na	1	45	1626.000	ppb	#REF!	2.14	25000.00	>RL
24	Mg	1	45	14950.000	ppb	#REF!	2.82	25000.00	>RL
27	Al	1	45	77560.000	ppb	#REF!	3.63	10000.00	OUTCAL
39	K	1	45	15950.000	ppb	#REF!	2.06	25000.00	>RL
44	Ca	2	45	122000.000	ppb	#REF!	1.91	25000.00	OUTCAL
47	Ti	1	45	242.400	ppb	#REF!	4.80	2000.00	>RL
51	V	1	45	105.900	ppb	#REF!	2.55	2000.00	>RL
52	Cr	1	45	64.670	ppb	#REF!	2.30	2000.00	>RL
55	Mn	1	45	611.000	ppb	#REF!	1.67	2000.00	>RL
56	Fe	1	72	70570.000	ppb	#REF!	2.87	10000.00	OUTCAL
59	Co	1	72	26.200	ppb	#REF!	1.83	2000.00	>RL
60	Ni	1	72	40.770	ppb	#REF!	1.19	2000.00	>RL
63	Cu	1	72	27.760	ppb	#REF!	1.61	2000.00	>RL
66	Zn	1	72	250.200	ppb	#REF!	2.10	2000.00	>RL
75	As	1	72	25.200	ppb	#REF!	2.41	2000.00	>RL
78	Se	1	72	13.900	ppb	#REF!	1.44	2000.00	>RL
88	Sr	2	115	422.700	ppb	#REF!	1.62	2000.00	>RL
95	Mo	2	115	3.382	ppb	#REF!	2.92	2000.00	J
107	Ag	2	115	0.238	ppb	#REF!	3.01	500.00	ND
111	Cd	2	115	1.247	ppb	#REF!	9.02	2000.00	>RL
118	Sn	2	115	5.737	ppb	#REF!	1.73	2000.00	J
121	Sb	2	115	1.880	ppb	#REF!	1.69	500.00	ND
137	Ba	2	115	883.400	ppb	#REF!	1.10	2000.00	>RL
205	Tl	2	209	0.841	ppb	#REF!	3.67	2000.00	ND
208	Pb	2	209	88.410	ppb	#REF!	1.31	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)		Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-14132.23	8.43	RHigh	36.77	-38434.6	70 - 120	ISFail
45	Sc	1	168848.64	1.18		157844.06	107.0	70 - 120	
45	Sc	2	6098049.50	1.24		5827273.50	104.6	70 - 120	
72	Ge	1	87440.24	0.73		86621.49	100.9	70 - 120	
115	In	2	6097494.50	0.71		6276207.00	97.2	70 - 120	
209	Bi	2	3941442.80	0.95		4446753.50	88.6	70 - 120	

DT QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\056DT1.D\056DT1.D#

Date Acquired:	Aug 10 2016 04:31 pm	Sample Name:	**1607314-03A SD**
Acq. Method:	DHL_3Fe.M	Misc Info:	SD ICPMS_TSDOD1
Operator:	KL	Bench Diln:	25.00
Last Cal. Update:	Aug 10 2016 01:05 pm	Auto Diln:	Undiluted
Instrument:	ICPMS3	Total Diln:	25.00

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)	Rec(%)	Flag
7	Li	2	45	16.10	ppb	1.41	-2940.88	90 - 110	-2.7	
9	Be	2	45	0.63	ppb	9.47	2.87	90 - 110	110.3	
11	B	2	45	19.73	ppb	1.07	81.55	90 - 110	121.0	
23	Na	1	45	332.40	ppb	0.97	1626.00	90 - 110	102.2	GOOD
24	Mg	1	45	3020.00	ppb	3.59	14950.00	90 - 110	101.0	GOOD
27	Al	1	45	15730.00	ppb	3.48	77560.00	90 - 110	101.4	GOOD
39	K	1	45	3176.00	ppb	1.46	15950.00	90 - 110	99.6	GOOD
44	Ca	2	45	25240.00	ppb	1.71	122000.00	90 - 110	103.4	GOOD
47	Ti	1	45	46.32	ppb	7.35	242.40	90 - 110	95.5	GOOD
51	V	1	45	21.50	ppb	4.08	105.90	90 - 110	101.5	GOOD
52	Cr	1	45	13.47	ppb	3.22	64.67	90 - 110	104.1	GOOD
55	Mn	1	45	127.40	ppb	2.65	611.00	90 - 110	104.3	GOOD
56	Fe	1	72	14400.00	ppb	3.80	70570.00	90 - 110	102.0	GOOD
59	Co	1	72	5.33	ppb	2.75	26.20	90 - 110	101.6	GOOD
60	Ni	1	72	8.72	ppb	2.97	40.77	90 - 110	107.0	GOOD
63	Cu	1	72	5.92	ppb	2.30	27.76	90 - 110	106.7	GOOD
66	Zn	1	72	56.83	ppb	3.21	250.20	90 - 110	113.6	
75	As	1	72	5.31	ppb	4.29	25.20	90 - 110	105.3	GOOD
78	Se	1	72	2.99	ppb	5.44	13.90	90 - 110	107.6	GOOD
88	Sr	2	115	84.20	ppb	3.52	422.70	90 - 110	99.6	GOOD
95	Mo	2	115	0.70	ppb	2.68	3.38	90 - 110	103.2	GOOD
107	Ag	2	115	0.07	ppb	15.17	0.24	90 - 110	139.9	
111	Cd	2	115	0.28	ppb	16.62	1.25	90 - 110	112.6	
118	Sn	2	115	1.18	ppb	2.18	5.74	90 - 110	102.6	GOOD
121	Sb	2	115	0.40	ppb	4.70	1.88	90 - 110	106.6	GOOD
137	Ba	2	115	167.30	ppb	1.53	883.40	90 - 110	94.7	GOOD
205	Tl	2	209	0.23	ppb	7.77	0.84	90 - 110	137.7	
208	Pb	2	209	17.50	ppb	1.12	88.41	90 - 110	99.0	GOOD

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	RHig	-2940.88	9.28	36.77	-7998.1	70 -	120	ISFail
45	Sc	1		169045.33	0.81	157844.06	107.1	70 -	120	
45	Sc	2		6002183.50	1.10	5827273.50	103.0	70 -	120	
72	Ge	1		90463.91	1.02	86621.49	104.4	70 -	120	
115	In	2		6110808.50	1.03	6276207.00	97.4	70 -	120	
209	Bi	2		4164325.30	1.41	4446753.50	93.6	70 -	120	

Sample QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\065SMPL.D\065SMPL.D#

Date Acquired:	Aug 10 2016 05:43 pm	Sample Name:	**1607314-01A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD1
Operator:	KL	Bench Diln:	5
Last Cal. Update:	Aug 10 2016 01:05 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	83.780	ppb	#REF!	2.49	2000.00	>RL
9	Be	2	45	1.868	ppb	#REF!	3.07	2000.00	>RL
11	B	2	45	108.600	ppb	#REF!	3.35	2000.00	>RL
23	Na	1	45	5810.000	ppb	#REF!	0.54	25000.00	>RL
24	Mg	1	45	10280.000	ppb	#REF!	0.94	25000.00	>RL
27	Al	1	45	45520.000	ppb	#REF!	1.80	10000.00	OUTCAL
39	K	1	45	7490.000	ppb	#REF!	0.61	25000.00	>RL
44	Ca	2	45	235900.000	ppb	#REF!	3.95	25000.00	OUTCAL
47	Ti	1	45	119.100	ppb	#REF!	0.80	2000.00	>RL
51	V	1	45	82.060	ppb	#REF!	1.79	2000.00	>RL
52	Cr	1	45	49.030	ppb	#REF!	2.01	2000.00	>RL
55	Mn	1	45	143.100	ppb	#REF!	1.54	2000.00	>RL
56	Fe	1	72	53790.000	ppb	#REF!	1.68	10000.00	OUTCAL
59	Co	1	72	11.430	ppb	#REF!	1.33	2000.00	>RL
60	Ni	1	72	19.400	ppb	#REF!	1.57	2000.00	>RL
63	Cu	1	72	11.450	ppb	#REF!	0.83	2000.00	>RL
66	Zn	1	72	119.000	ppb	#REF!	1.42	2000.00	>RL
75	As	1	72	18.980	ppb	#REF!	1.05	2000.00	>RL
78	Se	1	72	7.990	ppb	#REF!	7.61	2000.00	>RL
88	Sr	2	115	2471.000	ppb	#REF!	2.01	2000.00	OUTCAL
95	Mo	2	115	1.871	ppb	#REF!	2.49	2000.00	ND
107	Ag	2	115	0.081	ppb	#REF!	2.44	500.00	ND
111	Cd	2	115	0.673	ppb	#REF!	6.37	2000.00	J
118	Sn	2	115	5.726	ppb	#REF!	4.48	2000.00	ND
121	Sb	2	115	0.148	ppb	#REF!	8.20	500.00	ND
137	Ba	2	115	611.200	ppb	#REF!	2.38	2000.00	>RL
205	Tl	2	209	0.321	ppb	#REF!	2.21	2000.00	ND
208	Pb	2	209	26.470	ppb	#REF!	2.06	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-13134.04	3.50	36.77	-35719.8	70 - 120	ISFail
45	Sc	1	143575.33	0.79	157844.06	91.0	70 - 120	
45	Sc	2	6065374.00	4.12	5827273.50	104.1	70 - 120	
72	Ge	1	77374.01	0.96	86621.49	89.3	70 - 120	
115	In	2	5695276.50	3.58	6276207.00	90.7	70 - 120	
209	Bi	2	3583456.30	2.40	4446753.50	80.6	70 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\066SMPL.D\066SMPL.D#

Date Acquired:	Aug 10 2016 05:49 pm	Sample Name:	**1607314-02A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD1
Operator:	KL	Bench Diln:	5
Last Cal. Update:	Aug 10 2016 01:05 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	55.340	ppb	#REF!	0.87	2000.00	>RL
9	Be	2	45	1.565	ppb	#REF!	1.97	2000.00	>RL
11	B	2	45	115.400	ppb	#REF!	2.02	2000.00	>RL
23	Na	1	45	5324.000	ppb	#REF!	1.51	25000.00	>RL
24	Mg	1	45	7897.000	ppb	#REF!	3.61	25000.00	>RL
27	Al	1	45	36950.000	ppb	#REF!	2.76	10000.00	OUTCAL
39	K	1	45	6449.000	ppb	#REF!	1.30	25000.00	>RL
44	Ca	2	45	308600.000	ppb	#REF!	2.21	25000.00	OUTCAL
47	Ti	1	45	97.720	ppb	#REF!	4.07	2000.00	>RL
51	V	1	45	72.040	ppb	#REF!	2.90	2000.00	>RL
52	Cr	1	45	40.930	ppb	#REF!	2.55	2000.00	>RL
55	Mn	1	45	78.780	ppb	#REF!	3.96	2000.00	>RL
56	Fe	1	72	58270.000	ppb	#REF!	2.60	10000.00	OUTCAL
59	Co	1	72	8.586	ppb	#REF!	2.31	2000.00	>RL
60	Ni	1	72	12.900	ppb	#REF!	3.44	2000.00	>RL
63	Cu	1	72	9.910	ppb	#REF!	1.61	2000.00	>RL
66	Zn	1	72	96.770	ppb	#REF!	2.96	2000.00	>RL
75	As	1	72	20.460	ppb	#REF!	2.56	2000.00	>RL
78	Se	1	72	6.628	ppb	#REF!	1.78	2000.00	>RL
88	Sr	2	115	1578.000	ppb	#REF!	0.78	2000.00	>RL
95	Mo	2	115	1.978	ppb	#REF!	5.63	2000.00	ND
107	Ag	2	115	0.063	ppb	#REF!	13.46	500.00	ND
111	Cd	2	115	0.468	ppb	#REF!	16.77	2000.00	J
118	Sn	2	115	5.540	ppb	#REF!	1.21	2000.00	ND
121	Sb	2	115	0.111	ppb	#REF!	15.83	500.00	ND
137	Ba	2	115	189.200	ppb	#REF!	0.76	2000.00	>RL
205	Tl	2	209	0.262	ppb	#REF!	2.79	2000.00	ND
208	Pb	2	209	29.150	ppb	#REF!	0.24	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-9113.25	4.06	36.77	-24784.8	70 - 120	ISFail
45	Sc	1	150604.83	1.00	157844.06	95.4	70 - 120	
45	Sc	2	6415040.00	1.91	5827273.50	110.1	70 - 120	
72	Ge	1	79129.20	0.52	86621.49	91.4	70 - 120	
115	In	2	6015905.50	0.77	6276207.00	95.9	70 - 120	
209	Bi	2	3706958.80	0.56	4446753.50	83.4	70 - 120	

PDS QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\067_PDS.D\067_PDS.D#

Date Acquired:	Aug 10 2016 05:55 pm	Sample Name:	**1607314-03A PDS**
Acq. Method:	DHL_3Fe.M	Misc Info:	PDS ICPMS_TSDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	Aug 10 2016 01:05 pm	Auto Diln:	Undiluted
Instrument:	ICPMS3	Total Diln:	5.00

QC Elements

Element				Conc.		RSD(%)	Ref Conc	Spike	Range	Rec(%)	Flag
7	Li	2	45	332.70	ppb	2.69	-58463.21	200	75-125	######	Fail
9	Be	2	45	213.70	ppb	2.61	2.87	200	75-125	105.4	
11	B	2	45	281.20	ppb	2.97	81.55	200	75-125	99.8	
23	Na	1	45	7346.00	ppb	1.71	1626.00	5000	75-125	114.4	
24	Mg	1	45	21120.00	ppb	2.68	14950.00	5000	75-125	123.4	
27	Al	1	45	83780.00	ppb	3.29	77560.00	5000	75-125	124.4	
39	K	1	45	21520.00	ppb	1.15	15950.00	5000	75-125	111.4	
44	Ca	2	45	133300.00	ppb	3.00	122000.00	5000	75-125	226.0	Fail
47	Ti	1	45	448.50	ppb	3.98	242.40	200	75-125	103.1	
51	V	1	45	318.00	ppb	2.59	105.90	200	75-125	106.1	
52	Cr	1	45	277.50	ppb	2.66	64.67	200	75-125	106.4	
55	Mn	1	45	829.60	ppb	1.97	611.00	200	75-125	109.3	
56	Fe	1	72	78780.00	ppb	3.01	70570.00	5000	75-125	164.2	Fail
59	Co	1	72	233.10	ppb	1.86	26.20	200	75-125	103.4	
60	Ni	1	72	239.60	ppb	1.23	40.77	200	75-125	99.4	
63	Cu	1	72	226.50	ppb	1.66	27.76	200	75-125	99.4	
66	Zn	1	72	442.50	ppb	2.22	250.20	200	75-125	96.2	
75	As	1	72	218.90	ppb	2.27	25.20	200	75-125	96.8	
78	Se	1	72	189.80	ppb	3.02	13.90	200	75-125	88.0	
88	Sr	2	115	677.70	ppb	1.87	422.70	200	75-125	127.5	Fail
95	Mo	2	115	211.20	ppb	2.35	3.38	200	75-125	103.9	
107	Ag	2	115	190.80	ppb	1.79	0.24	200	75-125	95.3	
111	Cd	2	115	188.30	ppb	1.30	1.25	200	75-125	93.5	
118	Sn	2	115	204.80	ppb	1.54	5.74	200	75-125	99.5	
121	Sb	2	115	193.20	ppb	1.74	1.88	200	75-125	95.7	
137	Ba	2	115	1119.00	ppb	1.49	883.40	200	75-125	117.8	
205	Tl	2	209	208.90	ppb	1.31	0.84	200	75-125	104.0	
208	Pb	2	209	295.40	ppb	0.92	88.41	200	75-125	103.5	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-58463.21	2.99	36.77	-158998.8	70 - 120	ISFail
45	Sc	1	155074.30	0.41	157844.06	98.2	70 - 120	
45	Sc	2	6351654.50	2.66	5827273.50	109.0	70 - 120	
72	Ge	1	81892.20	0.16	86621.49	94.5	70 - 120	
115	In	2	5728518.00	1.19	6276207.00	91.3	70 - 120	
209	Bi	2	3743962.00	0.35	4446753.50	84.2	70 - 120	

MS/MSD QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\068_MS.D\068_MS.D#

Date Acquired:	Aug 10 2016 06:00 pm	Sample Name:	**1607314-03A MS**
Acq. Method:	DHL_3Fe.M	Misc Info:	MS ICPMS_TSDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	Aug 10 2016 01:05 pm	Auto Diln:	Undiluted
Instrument:	ICPMS3	Total Diln:	5.00

QC Elements

Element				Conc.		RSD(%)	Ref Conc	Spike	Range	Rec(%)	Flag
7	Li	2	45	334.70	ppb	1.83	########	200	80-120	######	Fail
9	Be	2	45	221.60	ppb	1.89	2.87	200	80-120	109.4	
11	B	2	45	286.70	ppb	1.43	81.55	200	80-120	102.6	
23	Na	1	45	7352.00	ppb	1.97	1626.00	5000	80-120	114.5	
24	Mg	1	45	20220.00	ppb	2.73	14950.00	5000	80-120	105.4	
27	Al	1	45	79020.00	ppb	3.42	77560.00	1000	80-120	146.0	Fail
39	K	1	45	20960.00	ppb	2.78	15950.00	5000	80-120	100.2	
44	Ca	2	45	117400.00	ppb	2.54	########	5000	80-120	-92.0	Fail
47	Ti	1	45	473.40	ppb	1.40	242.40	200	80-120	115.5	
51	V	1	45	319.50	ppb	3.20	105.90	200	80-120	106.8	
52	Cr	1	45	272.00	ppb	3.51	64.67	200	80-120	103.7	
55	Mn	1	45	756.30	ppb	2.83	611.00	200	80-120	72.7	Fail
56	Fe	1	72	68180.00	ppb	2.72	70570.00	1000	80-120	-239.0	Fail
59	Co	1	72	240.00	ppb	2.61	26.20	200	80-120	106.9	
60	Ni	1	72	244.50	ppb	2.38	40.77	200	80-120	101.9	
63	Cu	1	72	229.60	ppb	2.34	27.76	200	80-120	100.9	
66	Zn	1	72	424.50	ppb	3.30	250.20	200	80-120	87.2	
75	As	1	72	224.80	ppb	3.03	25.20	200	80-120	99.8	
78	Se	1	72	201.80	ppb	1.40	13.90	200	80-120	94.0	
88	Sr	2	115	638.80	ppb	2.32	422.70	200	80-120	108.0	
95	Mo	2	115	209.30	ppb	1.89	3.38	200	80-120	103.0	
107	Ag	2	115	198.60	ppb	1.81	0.24	200	80-120	99.2	
111	Cd	2	115	202.80	ppb	1.55	1.25	200	80-120	100.8	
118	Sn	2	115	215.40	ppb	1.49	5.74	200	80-120	104.8	
121	Sb	2	115	62.33	ppb	1.63	1.88	200	80-120	30.2	Fail
137	Ba	2	115	971.40	ppb	1.75	883.40	200	80-120	44.0	Fail
205	Tl	2	209	228.30	ppb	0.69	0.84	200	80-120	113.7	
208	Pb	2	209	298.10	ppb	0.95	88.41	200	80-120	104.8	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	-96826.02	1.86	36.77	########	70	-	120	ISFail
45	Sc	1	152598.89	0.79	157844.06	96.7	70	-	120	
45	Sc	2	6171120.00	2.11	5827273.50	105.9	70	-	120	
72	Ge	1	80772.27	0.44	86621.49	93.2	70	-	120	
115	In	2	5568273.50	1.39	6276207.00	88.7	70	-	120	
209	Bi	2	3694395.30	0.96	4446753.50	83.1	70	-	120	

MS/MSD QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\069_MS.D\069_MS.D#

Date Acquired:	Aug 10 2016 06:06 pm	Sample Name:	**1607314-03A MSD**
Acq. Method:	DHL_3Fe.M	Misc Info:	MSD ICPMS_TSDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	Aug 10 2016 01:05 pm	Auto Diln:	Undiluted
Instrument:	ICPMS3	Total Diln:	5.00

QC Elements

Element				Conc.		RSD(%)	Ref Conc	Spike	Range	Rec(%)	Flag
7	Li	2	45	333.70	ppb	1.03	########	200	80-120	######	Fail
9	Be	2	45	219.70	ppb	1.07	2.87	200	80-120	108.4	
11	B	2	45	286.40	ppb	1.57	81.55	200	80-120	102.4	
23	Na	1	45	7302.00	ppb	1.83	1626.00	5000	80-120	113.5	
24	Mg	1	45	20900.00	ppb	3.48	14950.00	5000	80-120	119.0	
27	Al	1	45	82070.00	ppb	4.53	77560.00	1000	80-120	451.0	Fail
39	K	1	45	21230.00	ppb	1.98	15950.00	5000	80-120	105.6	
44	Ca	2	45	127700.00	ppb	1.38	########	5000	80-120	114.0	
47	Ti	1	45	486.40	ppb	4.47	242.40	200	80-120	122.0	Fail
51	V	1	45	323.60	ppb	3.24	105.90	200	80-120	108.9	
52	Cr	1	45	276.20	ppb	4.03	64.67	200	80-120	105.8	
55	Mn	1	45	840.60	ppb	3.42	611.00	200	80-120	114.8	
56	Fe	1	72	71050.00	ppb	3.82	70570.00	1000	80-120	48.0	Fail
59	Co	1	72	240.30	ppb	3.35	26.20	200	80-120	107.0	
60	Ni	1	72	246.60	ppb	3.44	40.77	200	80-120	102.9	
63	Cu	1	72	232.80	ppb	2.98	27.76	200	80-120	102.5	
66	Zn	1	72	434.60	ppb	3.55	250.20	200	80-120	92.2	
75	As	1	72	226.80	ppb	2.43	25.20	200	80-120	100.8	
78	Se	1	72	200.40	ppb	2.41	13.90	200	80-120	93.3	
88	Sr	2	115	676.80	ppb	1.52	422.70	200	80-120	127.0	Fail
95	Mo	2	115	212.20	ppb	1.83	3.38	200	80-120	104.4	
107	Ag	2	115	200.20	ppb	1.56	0.24	200	80-120	100.0	
111	Cd	2	115	202.70	ppb	1.79	1.25	200	80-120	100.7	
118	Sn	2	115	217.90	ppb	1.50	5.74	200	80-120	106.1	
121	Sb	2	115	63.82	ppb	1.20	1.88	200	80-120	31.0	Fail
137	Ba	2	115	1006.00	ppb	1.73	883.40	200	80-120	61.3	Fail
205	Tl	2	209	227.90	ppb	1.21	0.84	200	80-120	113.5	
208	Pb	2	209	313.30	ppb	1.06	88.41	200	80-120	112.4	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	-94850.23	0.37	36.77	########	70	-	120	ISFail
45	Sc	1	152052.97	0.81	157844.06	96.3	70	-	120	
45	Sc	2	6049218.50	1.92	5827273.50	103.8	70	-	120	
72	Ge	1	79875.96	0.85	86621.49	92.2	70	-	120	
115	In	2	5438859.50	1.06	6276207.00	86.7	70	-	120	
209	Bi	2	3646787.50	1.68	4446753.50	82.0	70	-	120	

CCV QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\070CCV1.D\070CCV1.D#

Date Acquired:	Aug 10 2016 06:12 pm	Sample Name:	**CCV2-160810**
Acq. Method:	DHL_3Fe.M	Misc Info:	CCV ICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 10 2016 01:05 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	256.20	ppb	0.73	200.00	90 -	110	128.1	Fail
9	Be	2	45	233.50	ppb	1.05	200.00	90 -	110	116.8	Fail
11	B	2	45	222.50	ppb	0.95	200.00	90 -	110	111.3	Fail
23	Na	1	45	6002.00	ppb	2.01	5000.00	90 -	110	120.0	Fail
24	Mg	1	45	5605.00	ppb	2.64	5000.00	90 -	110	112.1	Fail
27	Al	1	45	5430.00	ppb	4.39	5000.00	90 -	110	108.6	
39	K	1	45	5422.00	ppb	2.27	5000.00	90 -	110	108.4	
44	Ca	2	45	5742.00	ppb	2.02	5000.00	90 -	110	114.8	Fail
47	Ti	1	45	213.30	ppb	3.87	200.00	90 -	110	106.7	
51	V	1	45	214.50	ppb	4.12	200.00	90 -	110	107.3	
52	Cr	1	45	217.40	ppb	3.56	200.00	90 -	110	108.7	
55	Mn	1	45	214.90	ppb	3.45	200.00	90 -	110	107.5	
56	Fe	1	72	5449.00	ppb	4.38	5000.00	90 -	110	109.0	
59	Co	1	72	219.60	ppb	3.07	200.00	90 -	110	109.8	
60	Ni	1	72	216.30	ppb	2.43	200.00	90 -	110	108.2	
63	Cu	1	72	220.60	ppb	3.01	200.00	90 -	110	110.3	Fail
66	Zn	1	72	218.70	ppb	2.70	200.00	90 -	110	109.4	
75	As	1	72	215.50	ppb	2.39	200.00	90 -	110	107.8	
78	Se	1	72	213.40	ppb	3.67	200.00	90 -	110	106.7	
88	Sr	2	115	237.80	ppb	1.72	200.00	90 -	110	118.9	Fail
95	Mo	2	115	226.90	ppb	1.52	200.00	90 -	110	113.5	Fail
107	Ag	2	115	215.90	ppb	1.70	200.00	90 -	110	108.0	
111	Cd	2	115	214.10	ppb	1.78	200.00	90 -	110	107.1	
118	Sn	2	115	209.90	ppb	1.04	200.00	90 -	110	105.0	
121	Sb	2	115	205.60	ppb	1.23	200.00	90 -	110	102.8	
137	Ba	2	115	206.00	ppb	0.81	200.00	90 -	110	103.0	
205	Tl	2	209	220.30	ppb	0.62	200.00	90 -	110	110.2	Fail
208	Pb	2	209	208.10	ppb	0.69	200.00	90 -	110	104.1	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	-83207.28	1.06	36.77	-226293.7	70 -	120		ISFail
45	Sc	1	149053.86	0.63	157844.06	94.4	70 -	120		
45	Sc	2	5934816.50	1.02	5827273.50	101.8	70 -	120		
72	Ge	1	80521.56	0.83	86621.49	93.0	70 -	120		
115	In	2	5231951.00	1.48	6276207.00	83.4	70 -	120		
209	Bi	2	3706362.00	0.81	4446753.50	83.3	70 -	120		

CCV QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\072LCVL.D\072LCVL.D#

Date Acquired:	Aug 10 2016 06:24 pm	Sample Name:	**LCVL2-160810**
Acq. Method:	DHL_3Fe.M	Misc Info:	LCVLICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 10 2016 01:05 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	13.08	ppb	0.91	10.00	70 -	130	130.8	Fail
9	Be	2	45	1.22	ppb	2.65	1.00	70 -	130	121.8	
11	B	2	45	24.68	ppb	1.52	20.00	70 -	130	123.4	
23	Na	1	45	114.80	ppb	1.38	100.00	70 -	130	114.8	
24	Mg	1	45	116.10	ppb	3.78	100.00	70 -	130	116.1	
27	Al	1	45	120.20	ppb	0.24	100.00	70 -	130	120.2	
39	K	1	45	110.90	ppb	4.98	100.00	70 -	130	110.9	
44	Ca	2	45	118.60	ppb	7.04	100.00	70 -	130	118.6	
47	Ti	1	45	4.68	ppb	11.30	5.00	70 -	130	93.6	
51	V	1	45	1.10	ppb	3.57	1.00	70 -	130	110.4	
52	Cr	1	45	5.64	ppb	2.74	5.00	70 -	130	112.8	
55	Mn	1	45	5.38	ppb	3.84	5.00	70 -	130	107.5	
56	Fe	1	72	121.30	ppb	2.35	100.00	70 -	130	121.3	
59	Co	1	72	5.48	ppb	2.86	5.00	70 -	130	109.6	
60	Ni	1	72	5.61	ppb	4.67	5.00	70 -	130	112.2	
63	Cu	1	72	5.55	ppb	1.17	5.00	70 -	130	111.0	
66	Zn	1	72	5.43	ppb	7.30	5.00	70 -	130	108.6	
75	As	1	72	5.40	ppb	3.59	5.00	70 -	130	108.0	
78	Se	1	72	5.86	ppb	9.38	5.00	70 -	130	117.3	
88	Sr	2	115	5.84	ppb	2.20	5.00	70 -	130	116.8	
95	Mo	2	115	5.75	ppb	4.26	5.00	70 -	130	115.0	
107	Ag	2	115	2.24	ppb	1.73	2.00	70 -	130	112.0	
111	Cd	2	115	1.11	ppb	9.36	1.00	70 -	130	110.7	
118	Sn	2	115	5.35	ppb	2.63	5.00	70 -	130	106.9	
121	Sb	2	115	2.16	ppb	0.66	2.00	70 -	130	108.0	
137	Ba	2	115	5.21	ppb	2.78	5.00	70 -	130	104.2	
205	Tl	2	209	1.20	ppb	1.47	1.00	70 -	130	119.8	
208	Pb	2	209	1.16	ppb	1.50	1.00	70 -	130	116.1	

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	RHigh	-2574.01	5.30	36.77	-7000.4	70 -	120	ISFail
45	Sc	1		147271.14	0.49	157844.06	93.3	70 -	120	
45	Sc	2		5772612.00	2.91	5827273.50	99.1	70 -	120	
72	Ge	1		81263.09	0.63	86621.49	93.8	70 -	120	
115	In	2		5218325.50	1.75	6276207.00	83.1	70 -	120	
209	Bi	2		3771712.50	1.42	4446753.50	84.8	70 -	120	

CCB QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\073_CCB.D\073_CCB.D#

Date Acquired:	Aug 10 2016 06:30 pm	Sample Name:	**CCB2-160810**
Acq. Method:	DHL_3Fe.M	Misc Info:	CCB ICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 10 2016 01:05 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	MDL S	MDL Aq	Flag
7	Li	2	45	0.201	ppb	0.44	2.00	2.00	
9	Be	2	45	0.047	ppb	6.20	0.40	0.30	
11	B	2	45	3.098	ppb	3.39	10.00	10.00	
23	Na	1	45	7.005	ppb	1.29	50.00	#####	
24	Mg	1	45	2.226	ppb	10.59	50.00	#####	
27	Al	1	45	11.450	ppb	11.39	50.00	10.00	FailAq
39	K	1	45	7.467	ppb	2.98	50.00	#####	
44	Ca	2	45	35.240	ppb	7.52	50.00	#####	
47	Ti	1	45	0.028	ppb	21.65	4.00	3.00	
51	V	1	45	0.014	ppb	7.95	4.00	3.00	
52	Cr	1	45	0.048	ppb	12.28	2.00	2.00	
55	Mn	1	45	0.134	ppb	11.84	2.00	3.00	
56	Fe	1	72	3.963	ppb	20.65	50.00	30.00	
59	Co	1	72	0.039	ppb	28.81	2.00	3.00	
60	Ni	1	72	0.135	ppb	4.45	2.00	3.00	
63	Cu	1	72	0.095	ppb	17.19	2.00	2.00	
66	Zn	1	72	1.372	ppb	13.87	4.00	2.00	
75	As	1	72	-0.071	ppb	3.17	2.00	2.00	
78	Se	1	72	0.149	ppb	13.73	0.60	2.00	
88	Sr	2	115	0.194	ppb	6.54	4.00	3.00	
95	Mo	2	115	0.086	ppb	9.86	2.00	2.00	
107	Ag	2	115	0.040	ppb	17.61	0.40	1.00	
111	Cd	2	115	0.036	ppb	32.41	0.40	0.30	
118	Sn	2	115	0.122	ppb	6.57	20.00	3.00	
121	Sb	2	115	0.063	ppb	6.69	2.00	0.80	
137	Ba	2	115	0.153	ppb	7.23	2.00	3.00	
205	Tl	2	209	0.138	ppb	12.42	2.00	0.50	
208	Pb	2	209	0.082	ppb	3.81	0.40	0.30	

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	RHigh	-55.23	74.93	36.77	-150.2	70 - 120	ISFail
45	Sc	1		148403.08	1.55	157844.06	94.0	70 - 120	
45	Sc	2		5709613.50	1.58	5827273.50	98.0	70 - 120	
72	Ge	1		81008.06	1.19	86621.49	93.5	70 - 120	
115	In	2		5213931.00	1.47	6276207.00	83.1	70 - 120	
209	Bi	2		3796520.80	0.85	4446753.50	85.4	70 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\074SMPL.D\074SMPL.D#

Date Acquired:	Aug 10 2016 06:36 pm	Sample Name:	**1607314-04A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD1
Operator:	KL	Bench Diln:	5
Last Cal. Update:	Aug 10 2016 01:05 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	99.560	ppb	#REF!	2.18	2000.00	>RL
9	Be	2	45	2.989	ppb	#REF!	4.00	2000.00	>RL
11	B	2	45	93.690	ppb	#REF!	1.83	2000.00	>RL
23	Na	1	45	2756.000	ppb	#REF!	2.55	25000.00	>RL
24	Mg	1	45	18150.000	ppb	#REF!	3.50	25000.00	>RL
27	Al	1	45	82930.000	ppb	#REF!	3.57	10000.00	OUTCAL
39	K	1	45	15230.000	ppb	#REF!	0.64	25000.00	>RL
44	Ca	2	45	160800.000	ppb	#REF!	1.96	25000.00	OUTCAL
47	Ti	1	45	262.100	ppb	#REF!	1.74	2000.00	>RL
51	V	1	45	127.700	ppb	#REF!	3.13	2000.00	>RL
52	Cr	1	45	69.500	ppb	#REF!	3.05	2000.00	>RL
55	Mn	1	45	580.600	ppb	#REF!	2.71	2000.00	>RL
56	Fe	1	72	73340.000	ppb	#REF!	2.81	10000.00	OUTCAL
59	Co	1	72	25.670	ppb	#REF!	2.14	2000.00	>RL
60	Ni	1	72	43.750	ppb	#REF!	2.64	2000.00	>RL
63	Cu	1	72	23.320	ppb	#REF!	1.85	2000.00	>RL
66	Zn	1	72	186.400	ppb	#REF!	2.62	2000.00	>RL
75	As	1	72	22.280	ppb	#REF!	2.45	2000.00	>RL
78	Se	1	72	13.760	ppb	#REF!	6.11	2000.00	>RL
88	Sr	2	115	625.400	ppb	#REF!	1.25	2000.00	>RL
95	Mo	2	115	1.473	ppb	#REF!	4.01	2000.00	ND
107	Ag	2	115	0.201	ppb	#REF!	9.62	500.00	ND
111	Cd	2	115	1.238	ppb	#REF!	7.51	2000.00	>RL
118	Sn	2	115	6.286	ppb	#REF!	1.85	2000.00	ND
121	Sb	2	115	0.298	ppb	#REF!	7.98	500.00	ND
137	Ba	2	115	1432.000	ppb	#REF!	1.45	2000.00	>RL
205	Tl	2	209	0.742	ppb	#REF!	2.94	2000.00	ND
208	Pb	2	209	33.990	ppb	#REF!	1.21	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-16074.30	3.01	36.77	-43716.3	70 - 120	ISFail
45	Sc	1	146280.73	0.47	157844.06	92.7	70 - 120	
45	Sc	2	5698342.00	1.90	5827273.50	97.8	70 - 120	
72	Ge	1	76740.16	0.53	86621.49	88.6	70 - 120	
115	In	2	5314385.50	1.79	6276207.00	84.7	70 - 120	
209	Bi	2	3577213.30	0.87	4446753.50	80.4	70 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\075SMPL.D\075SMPL.D#

Date Acquired:	Aug 10 2016 06:42 pm	Sample Name:	**1607314-05A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD1
Operator:	KL	Bench Diln:	5
Last Cal. Update:	Aug 10 2016 01:05 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	85.290	ppb	#REF!	1.19	2000.00	>RL
9	Be	2	45	2.368	ppb	#REF!	1.09	2000.00	>RL
11	B	2	45	127.400	ppb	#REF!	1.81	2000.00	>RL
23	Na	1	45	6726.000	ppb	#REF!	3.07	25000.00	>RL
24	Mg	1	45	13790.000	ppb	#REF!	3.13	25000.00	>RL
27	Al	1	45	61920.000	ppb	#REF!	3.65	10000.00	OUTCAL
39	K	1	45	11830.000	ppb	#REF!	1.93	25000.00	>RL
44	Ca	2	45	232600.000	ppb	#REF!	2.82	25000.00	OUTCAL
47	Ti	1	45	265.400	ppb	#REF!	2.50	2000.00	>RL
51	V	1	45	110.900	ppb	#REF!	3.20	2000.00	>RL
52	Cr	1	45	62.930	ppb	#REF!	2.86	2000.00	>RL
55	Mn	1	45	276.700	ppb	#REF!	3.43	2000.00	>RL
56	Fe	1	72	111300.000	ppb	#REF!	3.67	10000.00	OUTCAL
59	Co	1	72	16.560	ppb	#REF!	2.98	2000.00	>RL
60	Ni	1	72	27.420	ppb	#REF!	3.05	2000.00	>RL
63	Cu	1	72	20.370	ppb	#REF!	2.28	2000.00	>RL
66	Zn	1	72	205.700	ppb	#REF!	2.16	2000.00	>RL
75	As	1	72	36.010	ppb	#REF!	2.86	2000.00	>RL
78	Se	1	72	10.990	ppb	#REF!	7.45	2000.00	>RL
88	Sr	2	115	1607.000	ppb	#REF!	1.91	2000.00	>RL
95	Mo	2	115	5.245	ppb	#REF!	1.95	2000.00	J
107	Ag	2	115	0.113	ppb	#REF!	2.98	500.00	ND
111	Cd	2	115	1.028	ppb	#REF!	10.53	2000.00	J
118	Sn	2	115	7.354	ppb	#REF!	1.14	2000.00	ND
121	Sb	2	115	0.317	ppb	#REF!	5.23	500.00	ND
137	Ba	2	115	1366.000	ppb	#REF!	1.78	2000.00	>RL
205	Tl	2	209	0.486	ppb	#REF!	3.90	2000.00	ND
208	Pb	2	209	60.420	ppb	#REF!	1.16	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-13760.79	2.15	36.77	-37424.4	70 - 120	ISFail
45	Sc	1	142371.67	0.37	157844.06	90.2	70 - 120	
45	Sc	2	5671357.50	2.81	5827273.50	97.3	70 - 120	
72	Ge	1	75162.59	0.58	86621.49	86.8	70 - 120	
115	In	2	5470428.00	1.72	6276207.00	87.2	70 - 120	
209	Bi	2	3583092.00	1.52	4446753.50	80.6	70 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\076SMPL.D\076SMPL.D#

Date Acquired:	Aug 10 2016 06:48 pm	Sample Name:	**1607314-06A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD1
Operator:	KL	Bench Diln:	5
Last Cal. Update:	Aug 10 2016 01:05 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	56.490	ppb	#REF!	2.90	2000.00	>RL
9	Be	2	45	1.506	ppb	#REF!	2.42	2000.00	>RL
11	B	2	45	111.300	ppb	#REF!	4.64	2000.00	>RL
23	Na	1	45	5950.000	ppb	#REF!	4.64	25000.00	>RL
24	Mg	1	45	8227.000	ppb	#REF!	6.05	25000.00	>RL
27	Al	1	45	39580.000	ppb	#REF!	6.43	10000.00	OUTCAL
39	K	1	45	7465.000	ppb	#REF!	3.41	25000.00	>RL
44	Ca	2	45	302000.000	ppb	#REF!	4.04	25000.00	OUTCAL
47	Ti	1	45	110.300	ppb	#REF!	7.33	2000.00	>RL
51	V	1	45	66.340	ppb	#REF!	4.85	2000.00	>RL
52	Cr	1	45	42.290	ppb	#REF!	5.51	2000.00	>RL
55	Mn	1	45	83.680	ppb	#REF!	4.97	2000.00	>RL
56	Fe	1	72	55950.000	ppb	#REF!	5.47	10000.00	OUTCAL
59	Co	1	72	7.848	ppb	#REF!	4.94	2000.00	J
60	Ni	1	72	12.580	ppb	#REF!	4.23	2000.00	>RL
63	Cu	1	72	9.570	ppb	#REF!	2.60	2000.00	>RL
66	Zn	1	72	87.850	ppb	#REF!	3.84	2000.00	>RL
75	As	1	72	18.070	ppb	#REF!	2.47	2000.00	>RL
78	Se	1	72	7.299	ppb	#REF!	7.15	2000.00	>RL
88	Sr	2	115	1074.000	ppb	#REF!	2.94	2000.00	>RL
95	Mo	2	115	1.494	ppb	#REF!	3.45	2000.00	ND
107	Ag	2	115	0.086	ppb	#REF!	12.94	500.00	ND
111	Cd	2	115	0.456	ppb	#REF!	17.30	2000.00	J
118	Sn	2	115	5.651	ppb	#REF!	3.47	2000.00	ND
121	Sb	2	115	0.101	ppb	#REF!	5.59	500.00	ND
137	Ba	2	115	201.100	ppb	#REF!	2.88	2000.00	>RL
205	Tl	2	209	0.311	ppb	#REF!	3.30	2000.00	ND
208	Pb	2	209	32.040	ppb	#REF!	2.59	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)		Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-8837.69	6.84	RHigh	36.77	-24035.3	70 - 120	ISFail
45	Sc	1	151070.59	3.42		157844.06	95.7	70 - 120	
45	Sc	2	5804356.00	3.57		5827273.50	99.6	70 - 120	
72	Ge	1	78318.09	2.22		86621.49	90.4	70 - 120	
115	In	2	5536286.50	1.75		6276207.00	88.2	70 - 120	
209	Bi	2	3552402.80	2.57		4446753.50	79.9	70 - 120	

CCV QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\085CCV1.D\085CCV1.D#

Date Acquired:	Aug 10 2016 07:41 pm	Sample Name:	**CCV3-160810**
Acq. Method:	DHL_3Fe.M	Misc Info:	CCV ICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 10 2016 01:05 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	228.60	ppb	1.06	200.00	90 -	110	114.3	Fail
9	Be	2	45	211.80	ppb	1.56	200.00	90 -	110	105.9	
11	B	2	45	199.00	ppb	1.48	200.00	90 -	110	99.5	
23	Na	1	45	5728.00	ppb	1.72	5000.00	90 -	110	114.6	Fail
24	Mg	1	45	5369.00	ppb	2.39	5000.00	90 -	110	107.4	
27	Al	1	45	5328.00	ppb	3.48	5000.00	90 -	110	106.6	
39	K	1	45	5341.00	ppb	1.02	5000.00	90 -	110	106.8	
44	Ca	2	45	5699.00	ppb	1.79	5000.00	90 -	110	114.0	Fail
47	Ti	1	45	207.80	ppb	3.24	200.00	90 -	110	103.9	
51	V	1	45	209.20	ppb	2.80	200.00	90 -	110	104.6	
52	Cr	1	45	210.40	ppb	2.98	200.00	90 -	110	105.2	
55	Mn	1	45	209.80	ppb	2.91	200.00	90 -	110	104.9	
56	Fe	1	72	5269.00	ppb	3.17	5000.00	90 -	110	105.4	
59	Co	1	72	211.90	ppb	3.11	200.00	90 -	110	106.0	
60	Ni	1	72	207.80	ppb	2.47	200.00	90 -	110	103.9	
63	Cu	1	72	212.60	ppb	2.52	200.00	90 -	110	106.3	
66	Zn	1	72	212.90	ppb	2.26	200.00	90 -	110	106.5	
75	As	1	72	209.60	ppb	1.97	200.00	90 -	110	104.8	
78	Se	1	72	211.30	ppb	3.35	200.00	90 -	110	105.7	
88	Sr	2	115	233.30	ppb	2.19	200.00	90 -	110	116.7	Fail
95	Mo	2	115	220.90	ppb	1.92	200.00	90 -	110	110.5	Fail
107	Ag	2	115	209.90	ppb	1.58	200.00	90 -	110	105.0	
111	Cd	2	115	208.90	ppb	0.81	200.00	90 -	110	104.5	
118	Sn	2	115	206.40	ppb	1.27	200.00	90 -	110	103.2	
121	Sb	2	115	203.80	ppb	0.88	200.00	90 -	110	101.9	
137	Ba	2	115	203.00	ppb	1.36	200.00	90 -	110	101.5	
205	Tl	2	209	214.20	ppb	0.52	200.00	90 -	110	107.1	
208	Pb	2	209	203.20	ppb	0.96	200.00	90 -	110	101.6	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	-67866.80	0.86	36.77	-184573.1	70 -	120		ISFail
45	Sc	1	139865.91	0.42	157844.06	88.6	70 -	120		
45	Sc	2	5305360.50	2.19	5827273.50	91.0	70 -	120		
72	Ge	1	76163.90	0.19	86621.49	87.9	70 -	120		
115	In	2	4746292.00	1.15	6276207.00	75.6	70 -	120		
209	Bi	2	3442046.50	1.24	4446753.50	77.4	70 -	120		

CCV QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\087LCVL.D\087LCVL.D#

Date Acquired:	Aug 10 2016 07:53 pm	Sample Name:	**LCVL3-160810**
Acq. Method:	DHL_3Fe.M	Misc Info:	LCVLICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 10 2016 01:05 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	11.33	ppb	1.90	10.00	70 -	130	113.3	
9	Be	2	45	1.08	ppb	4.80	1.00	70 -	130	107.6	
11	B	2	45	20.91	ppb	2.17	20.00	70 -	130	104.6	
23	Na	1	45	104.00	ppb	2.07	100.00	70 -	130	104.0	
24	Mg	1	45	110.10	ppb	2.35	100.00	70 -	130	110.1	
27	Al	1	45	113.30	ppb	6.13	100.00	70 -	130	113.3	
39	K	1	45	106.40	ppb	0.94	100.00	70 -	130	106.4	
44	Ca	2	45	112.50	ppb	5.01	100.00	70 -	130	112.5	
47	Ti	1	45	5.27	ppb	6.72	5.00	70 -	130	105.5	
51	V	1	45	1.00	ppb	6.08	1.00	70 -	130	99.9	
52	Cr	1	45	5.27	ppb	3.44	5.00	70 -	130	105.4	
55	Mn	1	45	5.30	ppb	5.85	5.00	70 -	130	106.0	
56	Fe	1	72	112.40	ppb	4.44	100.00	70 -	130	112.4	
59	Co	1	72	5.25	ppb	3.35	5.00	70 -	130	105.1	
60	Ni	1	72	5.20	ppb	5.25	5.00	70 -	130	103.9	
63	Cu	1	72	5.30	ppb	4.88	5.00	70 -	130	106.1	
66	Zn	1	72	5.10	ppb	1.14	5.00	70 -	130	101.9	
75	As	1	72	5.23	ppb	1.26	5.00	70 -	130	104.7	
78	Se	1	72	5.41	ppb	5.35	5.00	70 -	130	108.3	
88	Sr	2	115	5.58	ppb	1.02	5.00	70 -	130	111.5	
95	Mo	2	115	5.34	ppb	1.92	5.00	70 -	130	106.9	
107	Ag	2	115	2.15	ppb	1.50	2.00	70 -	130	107.6	
111	Cd	2	115	1.10	ppb	2.16	1.00	70 -	130	110.1	
118	Sn	2	115	5.13	ppb	2.14	5.00	70 -	130	102.6	
121	Sb	2	115	2.06	ppb	2.42	2.00	70 -	130	103.1	
137	Ba	2	115	5.03	ppb	1.56	5.00	70 -	130	100.7	
205	Tl	2	209	1.10	ppb	3.05	1.00	70 -	130	110.2	
208	Pb	2	209	1.09	ppb	3.59	1.00	70 -	130	109.0	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	-2118.22	3.54	36.77	-5760.8	70 -	120	ISFail
45	Sc	1	138201.03	0.58	157844.06	87.6	70 -	120	
45	Sc	2	5241182.50	1.47	5827273.50	89.9	70 -	120	
72	Ge	1	75282.13	0.93	86621.49	86.9	70 -	120	
115	In	2	4910939.00	0.99	6276207.00	78.2	70 -	120	
209	Bi	2	3588281.30	0.80	4446753.50	80.7	70 -	120	

CCB QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\088_CCB.D\088_CCB.D#

Date Acquired:	Aug 10 2016 07:59 pm	Sample Name:	**CCB3-160810**
Acq. Method:	DHL_3Fe.M	Misc Info:	CCB ICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 10 2016 01:05 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	MDL S	MDL Aq	Flag
7	Li	2	45	0.130	ppb	7.80	2.00	2.00	
9	Be	2	45	0.024	ppb	29.23	0.40	0.30	
11	B	2	45	2.166	ppb	3.07	10.00	10.00	
23	Na	1	45	3.339	ppb	1.60	50.00	#####	
24	Mg	1	45	1.692	ppb	11.72	50.00	#####	
27	Al	1	45	9.499	ppb	5.31	50.00	10.00	
39	K	1	45	8.680	ppb	0.61	50.00	#####	
44	Ca	2	45	26.130	ppb	8.44	50.00	#####	
47	Ti	1	45	0.060	ppb	33.32	4.00	3.00	
51	V	1	45	-0.005	ppb	10.77	4.00	3.00	
52	Cr	1	45	0.018	ppb	10.46	2.00	2.00	
55	Mn	1	45	0.075	ppb	22.03	2.00	3.00	
56	Fe	1	72	1.209	ppb	16.37	50.00	30.00	
59	Co	1	72	0.029	ppb	18.16	2.00	3.00	
60	Ni	1	72	0.106	ppb	15.38	2.00	3.00	
63	Cu	1	72	0.069	ppb	2.22	2.00	2.00	
66	Zn	1	72	1.071	ppb	3.78	4.00	2.00	
75	As	1	72	-0.024	ppb	3.00	2.00	2.00	
78	Se	1	72	0.088	ppb	17.83	0.60	2.00	
88	Sr	2	115	0.138	ppb	7.93	4.00	3.00	
95	Mo	2	115	0.069	ppb	10.42	2.00	2.00	
107	Ag	2	115	0.020	ppb	3.07	0.40	1.00	
111	Cd	2	115	0.045	ppb	11.57	0.40	0.30	
118	Sn	2	115	0.089	ppb	12.02	20.00	3.00	
121	Sb	2	115	0.051	ppb	12.07	2.00	0.80	
137	Ba	2	115	0.104	ppb	13.47	2.00	3.00	
205	Tl	2	209	0.096	ppb	8.22	2.00	0.50	
208	Pb	2	209	0.047	ppb	12.03	0.40	0.30	

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	RHigh	-24.61	36.89	36.77	-66.9	70 - 120	ISFail
45	Sc	1		139436.95	1.35	157844.06	88.3	70 - 120	
45	Sc	2		5229415.00	1.76	5827273.50	89.7	70 - 120	
72	Ge	1		76538.14	1.47	86621.49	88.4	70 - 120	
115	In	2		4959201.00	1.52	6276207.00	79.0	70 - 120	
209	Bi	2		3613380.80	1.28	4446753.50	81.3	70 - 120	

PB QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\089__PB.D\089__PB.D#

Date Acquired:	Aug 10 2016 08:05 pm	Sample Name:	**MB-76716**
Acq. Method:	DHL_3Fe.M	Misc Info:	MBLKICPMS_TSDOD
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	Aug 10 2016 01:05 pm	Auto Dil:	Undiluted
Instrument:	ICPMS3	Total Dil:	5.00

QC Elements

Element				Conc.	RSD(%)	MDL	RL	Flag
7	Li	2	45	0.077 ppb	1.57	2.0	8.00	
9	Be	2	45	-0.003 ppb	7.14	0.4	1.20	
11	B	2	45	1.216 ppb	3.20	10.0	30.00	
23	Na	1	45	-1.529 ppb	3.25	50.0	#####	
24	Mg	1	45	5.869 ppb	1.40	50.0	#####	
27	Al	1	45	5.205 ppb	8.11	50.0	#####	
39	K	1	45	11.790 ppb	1.69	50.0	#####	
44	Ca	2	45	28.190 ppb	5.67	50.0	#####	
47	Ti	1	45	0.136 ppb	53.29	4.0	10.00	
51	V	1	45	-0.010 ppb	20.51	4.0	10.00	
52	Cr	1	45	0.144 ppb	15.99	2.0	8.00	
55	Mn	1	45	0.134 ppb	18.07	2.0	8.00	
56	Fe	1	72	3.122 ppb	11.58	50.0	#####	
59	Co	1	72	0.004 ppb	39.75	2.0	8.00	
60	Ni	1	72	0.111 ppb	12.45	2.0	8.00	
63	Cu	1	72	0.193 ppb	4.76	2.0	8.00	
66	Zn	1	72	3.543 ppb	2.00	4.0	10.00	
75	As	1	72	-0.113 ppb	5.48	2.0	4.00	
78	Se	1	72	0.087 ppb	4.09	0.6	2.00	
88	Sr	2	115	0.103 ppb	5.99	4.0	10.00	
95	Mo	2	115	0.034 ppb	29.41	2.0	8.00	
107	Ag	2	115	0.013 ppb	12.25	0.4	0.80	
111	Cd	2	115	0.000 ppb	167.88	0.4	1.20	
118	Sn	2	115	4.334 ppb	1.54	20.0	40.00	
121	Sb	2	115	0.013 ppb	9.80	2.0	4.00	
137	Ba	2	115	0.088 ppb	13.59	2.0	8.00	
205	Tl	2	209	0.051 ppb	7.82	2.0	4.00	
208	Pb	2	209	0.071 ppb	4.23	0.4	1.20	

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	RHig	-26.82	66.18	36.77	-72.9	70 - 120	ISFail
45	Sc	1		143243.34	0.69	157844.06	90.7	70 - 120	
45	Sc	2		5257679.50	2.16	5827273.50	90.2	70 - 120	
72	Ge	1		76715.16	0.82	86621.49	88.6	70 - 120	
115	In	2		4787413.00	1.49	6276207.00	76.3	70 - 120	
209	Bi	2		3534476.30	1.03	4446753.50	79.5	70 - 120	

LCS QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\090_LCS.D\090_LCS.D#

Date Acquired:	Aug 10 2016 08:11 pm	Sample Name:	**LCS-76716**
Acq. Method:	DHL_3Fe.M	Misc Info:	LCS ICPMS_TSDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	Aug 10 2016 01:05 pm	Auto Dil:	Undiluted
Instrument:	ICPMS3	Total Dil:	5.00

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	214.70	ppb	0.95	200.00	80 -	120	107.4	
9	Be	2	45	195.20	ppb	0.87	200.00	80 -	120	97.6	
11	B	2	45	191.00	ppb	1.04	200.00	80 -	120	95.5	
23	Na	1	45	5597.00	ppb	3.42	5000.00	80 -	120	111.9	
24	Mg	1	45	5268.00	ppb	2.41	5000.00	80 -	120	105.4	
27	Al	1	45	1064.00	ppb	2.84	1000.00	80 -	120	106.4	
39	K	1	45	5219.00	ppb	1.76	5000.00	80 -	120	104.4	
44	Ca	2	45	5499.00	ppb	0.88	5000.00	80 -	120	110.0	
47	Ti	1	45	206.90	ppb	3.58	200.00	80 -	120	103.5	
51	V	1	45	204.30	ppb	3.18	200.00	80 -	120	102.2	
52	Cr	1	45	205.70	ppb	3.16	200.00	80 -	120	102.9	
55	Mn	1	45	208.70	ppb	2.65	200.00	80 -	120	104.4	
56	Fe	1	72	1047.00	ppb	3.27	1000.00	80 -	120	104.7	
59	Co	1	72	211.20	ppb	2.65	200.00	80 -	120	105.6	
60	Ni	1	72	206.30	ppb	3.11	200.00	80 -	120	103.2	
63	Cu	1	72	209.80	ppb	2.12	200.00	80 -	120	104.9	
66	Zn	1	72	207.90	ppb	2.19	200.00	80 -	120	104.0	
75	As	1	72	201.60	ppb	2.34	200.00	80 -	120	100.8	
78	Se	1	72	195.50	ppb	3.48	200.00	80 -	120	97.8	
88	Sr	2	115	232.20	ppb	1.53	200.00	80 -	120	116.1	
95	Mo	2	115	217.60	ppb	1.54	200.00	80 -	120	108.8	
107	Ag	2	115	205.70	ppb	0.98	200.00	80 -	120	102.9	
111	Cd	2	115	200.60	ppb	1.30	200.00	80 -	120	100.3	
118	Sn	2	115	210.10	ppb	0.60	200.00	80 -	120	105.1	
121	Sb	2	115	195.30	ppb	0.72	200.00	80 -	120	97.7	
137	Ba	2	115	203.60	ppb	1.05	200.00	80 -	120	101.8	
205	Tl	2	209	214.90	ppb	0.43	200.00	80 -	120	107.5	
208	Pb	2	209	203.00	ppb	0.56	200.00	80 -	120	101.5	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	-62863.27	1.70	36.77	-170965.3	70 -	120	ISFail
45	Sc	1	138957.77	0.32	157844.06	88.0	70 -	120	
45	Sc	2	5063692.00	0.78	5827273.50	86.9	70 -	120	
72	Ge	1	73428.23	0.59	86621.49	84.8	70 -	120	
115	In	2	4544809.00	0.13	6276207.00	72.4	70 -	120	
209	Bi	2	3348332.50	0.47	4446753.50	75.3	70 -	120	

LCS QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\091_LCS.D\091_LCS.D#

Date Acquired:	Aug 10 2016 08:17 pm	Sample Name:	**LCSD-76716**
Acq. Method:	DHL_3Fe.M	Misc Info:	LCSDICPMS_TSDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	Aug 10 2016 01:05 pm	Auto Dil:	Undiluted
Instrument:	ICPMS3	Total Dil:	5.00

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	209.10	ppb	0.92	200.00	80 -	120	104.6	
9	Be	2	45	192.60	ppb	1.01	200.00	80 -	120	96.3	
11	B	2	45	186.30	ppb	0.73	200.00	80 -	120	93.2	
23	Na	1	45	5508.00	ppb	2.51	5000.00	80 -	120	110.2	
24	Mg	1	45	5191.00	ppb	2.76	5000.00	80 -	120	103.8	
27	Al	1	45	1047.00	ppb	2.17	1000.00	80 -	120	104.7	
39	K	1	45	5152.00	ppb	2.01	5000.00	80 -	120	103.0	
44	Ca	2	45	5381.00	ppb	1.35	5000.00	80 -	120	107.6	
47	Ti	1	45	206.90	ppb	6.19	200.00	80 -	120	103.5	
51	V	1	45	201.20	ppb	3.01	200.00	80 -	120	100.6	
52	Cr	1	45	202.60	ppb	3.59	200.00	80 -	120	101.3	
55	Mn	1	45	204.50	ppb	2.58	200.00	80 -	120	102.3	
56	Fe	1	72	1018.00	ppb	3.27	1000.00	80 -	120	101.8	
59	Co	1	72	205.80	ppb	2.93	200.00	80 -	120	102.9	
60	Ni	1	72	201.60	ppb	2.40	200.00	80 -	120	100.8	
63	Cu	1	72	205.00	ppb	2.53	200.00	80 -	120	102.5	
66	Zn	1	72	204.70	ppb	3.02	200.00	80 -	120	102.4	
75	As	1	72	199.60	ppb	2.26	200.00	80 -	120	99.8	
78	Se	1	72	195.60	ppb	1.40	200.00	80 -	120	97.8	
88	Sr	2	115	225.50	ppb	1.05	200.00	80 -	120	112.8	
95	Mo	2	115	213.30	ppb	1.30	200.00	80 -	120	106.7	
107	Ag	2	115	202.40	ppb	1.06	200.00	80 -	120	101.2	
111	Cd	2	115	197.70	ppb	1.10	200.00	80 -	120	98.9	
118	Sn	2	115	206.70	ppb	0.43	200.00	80 -	120	103.4	
121	Sb	2	115	195.40	ppb	0.03	200.00	80 -	120	97.7	
137	Ba	2	115	199.70	ppb	0.54	200.00	80 -	120	99.9	
205	Tl	2	209	209.50	ppb	0.32	200.00	80 -	120	104.8	
208	Pb	2	209	198.60	ppb	0.71	200.00	80 -	120	99.3	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	-59964.26	1.58	36.77	-163081.1	70 -	120	ISFail
45	Sc	1	135174.03	1.00	157844.06	85.6	70 -	120	
45	Sc	2	4950650.50	0.74	5827273.50	85.0	70 -	120	
72	Ge	1	72003.48	0.47	86621.49	83.1	70 -	120	
115	In	2	4576596.00	0.70	6276207.00	72.9	70 -	120	
209	Bi	2	3395703.00	0.43	4446753.50	76.4	70 -	120	

DT QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\094DT1.D\094DT1.D#

Date Acquired:	Aug 10 2016 08:35 pm	Sample Name:	**1607317-09A SD**
Acq. Method:	DHL_3Fe.M	Misc Info:	SD ICPMS_TSDOD1
Operator:	KL	Bench Diln:	25.00
Last Cal. Update:	Aug 10 2016 01:05 pm	Auto Diln:	Undiluted
Instrument:	ICPMS3	Total Diln:	25.00

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)	Rec(%)	Flag
7	Li	2	45	9.84	ppb	0.22	-1495.64	90 - 110	-3.3	
9	Be	2	45	0.49	ppb	9.17	2.33	90 - 110	105.5	GOOD
11	B	2	45	11.94	ppb	1.84	52.50	90 - 110	113.7	
23	Na	1	45	646.80	ppb	1.94	3282.00	90 - 110	98.5	GOOD
24	Mg	1	45	2460.00	ppb	2.96	12820.00	90 - 110	95.9	GOOD
27	Al	1	45	13310.00	ppb	3.58	70500.00	90 - 110	94.4	GOOD
39	K	1	45	2885.00	ppb	0.96	14640.00	90 - 110	98.5	GOOD
44	Ca	2	45	10890.00	ppb	1.39	53410.00	90 - 110	101.9	GOOD
47	Ti	1	45	44.10	ppb	7.19	205.30	90 - 110	107.4	GOOD
51	V	1	45	17.48	ppb	4.39	87.36	90 - 110	100.0	GOOD
52	Cr	1	45	10.40	ppb	3.98	51.47	90 - 110	101.0	GOOD
55	Mn	1	45	150.60	ppb	3.82	749.90	90 - 110	100.4	GOOD
56	Fe	1	72	11470.00	ppb	3.58	57960.00	90 - 110	98.9	GOOD
59	Co	1	72	4.55	ppb	4.91	22.61	90 - 110	100.6	GOOD
60	Ni	1	72	7.02	ppb	5.54	34.39	90 - 110	102.0	GOOD
63	Cu	1	72	5.87	ppb	2.36	28.30	90 - 110	103.6	GOOD
66	Zn	1	72	55.00	ppb	3.43	253.50	90 - 110	108.5	GOOD
75	As	1	72	7.17	ppb	3.14	35.35	90 - 110	101.5	GOOD
78	Se	1	72	2.98	ppb	12.97	11.78	90 - 110	126.4	
88	Sr	2	115	56.57	ppb	1.18	299.20	90 - 110	94.5	GOOD
95	Mo	2	115	0.35	ppb	11.23	1.73	90 - 110	102.0	GOOD
107	Ag	2	115	0.06	ppb	9.46	0.32	90 - 110	94.2	GOOD
111	Cd	2	115	0.30	ppb	10.71	1.31	90 - 110	114.8	
118	Sn	2	115	1.12	ppb	1.82	5.73	90 - 110	97.3	GOOD
121	Sb	2	115	0.75	ppb	2.12	3.39	90 - 110	110.2	
137	Ba	2	115	86.52	ppb	0.65	440.60	90 - 110	98.2	GOOD
205	Tl	2	209	0.18	ppb	9.31	0.68	90 - 110	131.5	
208	Pb	2	209	25.49	ppb	0.46	130.90	90 - 110	97.4	GOOD

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	RHig	-1495.64	9.29	36.77	-4067.6	70 -	120	ISFail
45	Sc	1		133766.89	0.63	157844.06	84.7	70 -	120	
45	Sc	2		4632488.50	1.11	5827273.50	79.5	70 -	120	
72	Ge	1		71798.76	0.46	86621.49	82.9	70 -	120	
115	In	2		4408075.00	0.38	6276207.00	70.2	70 -	120	
209	Bi	2		3359444.30	0.27	4446753.50	75.5	70 -	120	

PDS QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\105_PDS.D\105_PDS.D#

Date Acquired:	Aug 10 2016 09:41 pm	Sample Name:	**1607317-09A PDS**
Acq. Method:	DHL_3Fe.M	Misc Info:	PDS ICPMS_TSDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	Aug 10 2016 01:05 pm	Auto Diln:	Undiluted
Instrument:	ICPMS3	Total Diln:	5.00

QC Elements

Element				Conc.		RSD(%)	Ref Conc	Spike	Range	Rec(%)	Flag
7	Li	2	45	233.40	ppb	2.05	-39481.89	200	75-125	######	Fail
9	Be	2	45	177.00	ppb	1.78	2.33	200	75-125	87.3	
11	B	2	45	209.20	ppb	1.29	52.50	200	75-125	78.4	
23	Na	1	45	8573.00	ppb	1.49	3282.00	5000	75-125	105.8	
24	Mg	1	45	17830.00	ppb	2.78	12820.00	5000	75-125	100.2	
27	Al	1	45	75230.00	ppb	3.43	70500.00	5000	75-125	94.6	
39	K	1	45	20400.00	ppb	1.39	14640.00	5000	75-125	115.2	
44	Ca	2	45	59120.00	ppb	2.50	53410.00	5000	75-125	114.2	
47	Ti	1	45	409.70	ppb	3.19	205.30	200	75-125	102.2	
51	V	1	45	290.10	ppb	2.80	87.36	200	75-125	101.4	
52	Cr	1	45	253.20	ppb	2.86	51.47	200	75-125	100.9	
55	Mn	1	45	966.00	ppb	2.23	749.90	200	75-125	108.0	
56	Fe	1	72	63660.00	ppb	2.46	57960.00	5000	75-125	114.0	
59	Co	1	72	219.20	ppb	2.41	22.61	200	75-125	98.3	
60	Ni	1	72	221.30	ppb	2.34	34.39	200	75-125	93.5	
63	Cu	1	72	213.30	ppb	2.16	28.30	200	75-125	92.5	
66	Zn	1	72	445.60	ppb	2.86	253.50	200	75-125	96.1	
75	As	1	72	229.30	ppb	2.29	35.35	200	75-125	97.0	
78	Se	1	72	197.00	ppb	1.49	11.78	200	75-125	92.6	
88	Sr	2	115	508.70	ppb	2.01	299.20	200	75-125	104.7	
95	Mo	2	115	200.90	ppb	1.65	1.73	200	75-125	99.6	
107	Ag	2	115	186.70	ppb	1.32	0.32	200	75-125	93.2	
111	Cd	2	115	185.30	ppb	1.08	1.31	200	75-125	92.0	
118	Sn	2	115	204.90	ppb	1.02	5.73	200	75-125	99.6	
121	Sb	2	115	201.70	ppb	0.55	3.39	200	75-125	99.2	
137	Ba	2	115	643.30	ppb	0.67	440.60	200	75-125	101.3	
205	Tl	2	209	203.90	ppb	0.62	0.68	200	75-125	101.6	
208	Pb	2	209	334.80	ppb	0.99	130.90	200	75-125	102.0	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-39481.89	2.97	36.77	-107376.4	70 - 120	ISFail
45	Sc	1	131038.41	0.14	157844.06	83.0	70 - 120	
45	Sc	2	4702444.50	2.42	5827273.50	80.7	70 - 120	
72	Ge	1	70037.72	0.06	86621.49	80.9	70 - 120	
115	In	2	4599213.50	0.50	6276207.00	73.3	70 - 120	
209	Bi	2	3272732.80	1.01	4446753.50	73.6	70 - 120	

MS/MSD QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\106_MS.D\106_MS.D#

Date Acquired:	Aug 10 2016 09:46 pm	Sample Name:	**1607317-09A MS**
Acq. Method:	DHL_3Fe.M	Misc Info:	MS ICPMS_TSDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	Aug 10 2016 01:05 pm	Auto Diln:	Undiluted
Instrument:	ICPMS3	Total Diln:	5.00

QC Elements

Element				Conc.		RSD(%)	Ref Conc	Spike	Range	Rec(%)	Flag
7	Li	2	45	243.90	ppb	1.50	########	200	80-120	######	Fail
9	Be	2	45	176.80	ppb	1.27	2.33	200	80-120	87.2	
11	B	2	45	218.30	ppb	0.93	52.50	200	80-120	82.9	
23	Na	1	45	8843.00	ppb	2.11	3282.00	5000	80-120	111.2	
24	Mg	1	45	19800.00	ppb	3.29	12820.00	5000	80-120	139.6	Fail
27	Al	1	45	88960.00	ppb	3.71	70500.00	1000	80-120	1846.0	Fail
39	K	1	45	23550.00	ppb	0.69	14640.00	5000	80-120	178.2	Fail
44	Ca	2	45	64700.00	ppb	1.61	53410.00	5000	80-120	225.8	Fail
47	Ti	1	45	459.90	ppb	3.38	205.30	200	80-120	127.3	Fail
51	V	1	45	320.50	ppb	3.08	87.36	200	80-120	116.6	
52	Cr	1	45	255.50	ppb	3.40	51.47	200	80-120	102.0	
55	Mn	1	45	1282.00	ppb	2.99	749.90	200	80-120	266.0	Fail
56	Fe	1	72	70950.00	ppb	2.74	57960.00	1000	80-120	1299.0	Fail
59	Co	1	72	226.60	ppb	2.43	22.61	200	80-120	102.0	
60	Ni	1	72	224.10	ppb	2.87	34.39	200	80-120	94.9	
63	Cu	1	72	216.00	ppb	2.82	28.30	200	80-120	93.9	
66	Zn	1	72	477.90	ppb	2.26	253.50	200	80-120	112.2	
75	As	1	72	236.40	ppb	2.28	35.35	200	80-120	100.5	
78	Se	1	72	197.50	ppb	3.06	11.78	200	80-120	92.9	
88	Sr	2	115	560.60	ppb	2.16	299.20	200	80-120	130.7	Fail
95	Mo	2	115	193.70	ppb	1.99	1.73	200	80-120	96.0	
107	Ag	2	115	186.80	ppb	1.84	0.32	200	80-120	93.2	
111	Cd	2	115	189.70	ppb	1.48	1.31	200	80-120	94.2	
118	Sn	2	115	208.10	ppb	1.02	5.73	200	80-120	101.2	
121	Sb	2	115	73.76	ppb	0.56	3.39	200	80-120	35.2	Fail
137	Ba	2	115	817.50	ppb	0.91	440.60	200	80-120	188.4	Fail
205	Tl	2	209	211.20	ppb	1.43	0.68	200	80-120	105.3	
208	Pb	2	209	387.50	ppb	0.68	130.90	200	80-120	128.3	Fail

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	-58590.41	1.13	36.77	########	70	-	120	ISFail
45	Sc	1	132937.44	0.58	157844.06	84.2	70	-	120	
45	Sc	2	4618868.50	2.37	5827273.50	79.3	70	-	120	
72	Ge	1	70291.84	0.45	86621.49	81.1	70	-	120	
115	In	2	4452912.50	0.67	6276207.00	70.9	70	-	120	
209	Bi	2	3186888.30	1.02	4446753.50	71.7	70	-	120	

MS/MSD QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\107_MS.D\107_MS.D#

Date Acquired:	Aug 10 2016 09:52 pm	Sample Name:	**1607317-09A MSD**
Acq. Method:	DHL_3Fe.M	Misc Info:	MSD ICPMS_TSDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	Aug 10 2016 01:05 pm	Auto Diln:	Undiluted
Instrument:	ICPMS3	Total Diln:	5.00

QC Elements

Element				Conc.		RSD(%)	Ref Conc	Spike	Range	Rec(%)	Flag
7	Li	2	45	242.60	ppb	1.41	########	200	80-120	######	Fail
9	Be	2	45	177.60	ppb	0.63	2.33	200	80-120	87.6	
11	B	2	45	222.30	ppb	0.37	52.50	200	80-120	84.9	
23	Na	1	45	8820.00	ppb	2.32	3282.00	5000	80-120	110.8	
24	Mg	1	45	19640.00	ppb	3.81	12820.00	5000	80-120	136.4	Fail
27	Al	1	45	85510.00	ppb	3.58	70500.00	1000	80-120	1501.0	Fail
39	K	1	45	23220.00	ppb	2.64	14640.00	5000	80-120	171.6	Fail
44	Ca	2	45	60660.00	ppb	1.38	53410.00	5000	80-120	145.0	Fail
47	Ti	1	45	467.30	ppb	3.36	205.30	200	80-120	131.0	Fail
51	V	1	45	303.90	ppb	3.05	87.36	200	80-120	108.3	
52	Cr	1	45	260.70	ppb	3.06	51.47	200	80-120	104.6	
55	Mn	1	45	974.30	ppb	2.50	749.90	200	80-120	112.2	
56	Fe	1	72	68320.00	ppb	3.26	57960.00	1000	80-120	1036.0	Fail
59	Co	1	72	233.30	ppb	3.22	22.61	200	80-120	105.3	
60	Ni	1	72	231.60	ppb	2.75	34.39	200	80-120	98.6	
63	Cu	1	72	222.00	ppb	2.03	28.30	200	80-120	96.9	
66	Zn	1	72	479.90	ppb	2.19	253.50	200	80-120	113.2	
75	As	1	72	232.70	ppb	1.57	35.35	200	80-120	98.7	
78	Se	1	72	199.00	ppb	2.03	11.78	200	80-120	93.6	
88	Sr	2	115	560.10	ppb	1.24	299.20	200	80-120	130.4	Fail
95	Mo	2	115	199.00	ppb	1.15	1.73	200	80-120	98.6	
107	Ag	2	115	191.00	ppb	1.08	0.32	200	80-120	95.3	
111	Cd	2	115	193.70	ppb	1.29	1.31	200	80-120	96.2	
118	Sn	2	115	213.10	ppb	0.59	5.73	200	80-120	103.7	
121	Sb	2	115	71.86	ppb	0.49	3.39	200	80-120	34.2	Fail
137	Ba	2	115	721.00	ppb	0.42	440.60	200	80-120	140.2	Fail
205	Tl	2	209	215.30	ppb	1.47	0.68	200	80-120	107.3	
208	Pb	2	209	376.60	ppb	0.66	130.90	200	80-120	122.9	Fail

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-57818.87	1.86	36.77	########	70 - 120	ISFail
45	Sc	1	131948.41	0.29	157844.06	83.6	70 - 120	
45	Sc	2	4587145.50	0.91	5827273.50	78.7	70 - 120	
72	Ge	1	69201.56	0.18	86621.49	79.9	70 - 120	
115	In	2	4275379.50	0.64	6276207.00	68.1	70 - 120	ISFail
209	Bi	2	3090457.80	0.08	4446753.50	69.5	70 - 120	ISFail

CCV QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\108CCV1.D\108CCV1.D#

Date Acquired:	Aug 10 2016 09:58 pm	Sample Name:	**CCV4-160810**
Acq. Method:	DHL_3Fe.M	Misc Info:	CCV ICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 10 2016 01:05 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	200.10	ppb	1.14	200.00	90 -	110	100.1	
9	Be	2	45	191.10	ppb	0.56	200.00	90 -	110	95.6	
11	B	2	45	177.00	ppb	0.87	200.00	90 -	110	88.5	Fail
23	Na	1	45	5516.00	ppb	2.24	5000.00	90 -	110	110.3	Fail
24	Mg	1	45	5244.00	ppb	3.70	5000.00	90 -	110	104.9	
27	Al	1	45	5306.00	ppb	4.58	5000.00	90 -	110	106.1	
39	K	1	45	5330.00	ppb	1.65	5000.00	90 -	110	106.6	
44	Ca	2	45	5572.00	ppb	1.78	5000.00	90 -	110	111.4	Fail
47	Ti	1	45	197.40	ppb	6.24	200.00	90 -	110	98.7	
51	V	1	45	204.40	ppb	3.87	200.00	90 -	110	102.2	
52	Cr	1	45	205.00	ppb	3.69	200.00	90 -	110	102.5	
55	Mn	1	45	209.90	ppb	3.57	200.00	90 -	110	105.0	
56	Fe	1	72	5272.00	ppb	4.55	5000.00	90 -	110	105.4	
59	Co	1	72	207.00	ppb	3.41	200.00	90 -	110	103.5	
60	Ni	1	72	203.00	ppb	3.35	200.00	90 -	110	101.5	
63	Cu	1	72	206.80	ppb	3.26	200.00	90 -	110	103.4	
66	Zn	1	72	219.50	ppb	6.56	200.00	90 -	110	109.8	
75	As	1	72	209.40	ppb	2.92	200.00	90 -	110	104.7	
78	Se	1	72	209.90	ppb	3.49	200.00	90 -	110	105.0	
88	Sr	2	115	229.40	ppb	0.84	200.00	90 -	110	114.7	Fail
95	Mo	2	115	216.80	ppb	1.28	200.00	90 -	110	108.4	
107	Ag	2	115	204.40	ppb	1.08	200.00	90 -	110	102.2	
111	Cd	2	115	203.90	ppb	1.45	200.00	90 -	110	102.0	
118	Sn	2	115	204.10	ppb	0.64	200.00	90 -	110	102.1	
121	Sb	2	115	204.50	ppb	0.34	200.00	90 -	110	102.3	
137	Ba	2	115	203.60	ppb	0.32	200.00	90 -	110	101.8	
205	Tl	2	209	211.30	ppb	0.58	200.00	90 -	110	105.7	
208	Pb	2	209	199.20	ppb	0.48	200.00	90 -	110	99.6	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	-56569.73	2.13	36.77	-153849.2	70 -	120		ISFail
45	Sc	1	131748.33	0.66	157844.06	83.5	70 -	120		
45	Sc	2	4851440.50	1.46	5827273.50	83.3	70 -	120		
72	Ge	1	70997.86	0.64	86621.49	82.0	70 -	120		
115	In	2	4482388.00	0.80	6276207.00	71.4	70 -	120		
209	Bi	2	3345980.50	0.34	4446753.50	75.2	70 -	120		

CCV QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\110LCVL.D\110LCVL.D#

Date Acquired:	Aug 10 2016 10:10 pm	Sample Name:	**LCVL4-160810**
Acq. Method:	DHL_3Fe.M	Misc Info:	LCVLICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 10 2016 01:05 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	10.10	ppb	0.73	10.00	70 -	130	101.0	
9	Be	2	45	0.99	ppb	8.05	1.00	70 -	130	99.0	
11	B	2	45	19.25	ppb	1.68	20.00	70 -	130	96.3	
23	Na	1	45	95.50	ppb	0.92	100.00	70 -	130	95.5	
24	Mg	1	45	108.50	ppb	2.32	100.00	70 -	130	108.5	
27	Al	1	45	119.60	ppb	2.45	100.00	70 -	130	119.6	
39	K	1	45	111.90	ppb	2.64	100.00	70 -	130	111.9	
44	Ca	2	45	114.20	ppb	8.57	100.00	70 -	130	114.2	
47	Ti	1	45	5.12	ppb	6.10	5.00	70 -	130	102.4	
51	V	1	45	1.09	ppb	3.34	1.00	70 -	130	109.2	
52	Cr	1	45	5.21	ppb	4.31	5.00	70 -	130	104.2	
55	Mn	1	45	5.32	ppb	2.24	5.00	70 -	130	106.4	
56	Fe	1	72	117.50	ppb	2.56	100.00	70 -	130	117.5	
59	Co	1	72	5.14	ppb	1.56	5.00	70 -	130	102.8	
60	Ni	1	72	5.15	ppb	2.82	5.00	70 -	130	103.0	
63	Cu	1	72	5.13	ppb	1.13	5.00	70 -	130	102.6	
66	Zn	1	72	5.59	ppb	6.43	5.00	70 -	130	111.8	
75	As	1	72	5.17	ppb	1.71	5.00	70 -	130	103.3	
78	Se	1	72	5.64	ppb	3.90	5.00	70 -	130	112.7	
88	Sr	2	115	5.64	ppb	1.80	5.00	70 -	130	112.7	
95	Mo	2	115	5.35	ppb	3.92	5.00	70 -	130	107.0	
107	Ag	2	115	2.21	ppb	2.44	2.00	70 -	130	110.7	
111	Cd	2	115	1.01	ppb	5.24	1.00	70 -	130	100.6	
118	Sn	2	115	5.23	ppb	0.62	5.00	70 -	130	104.5	
121	Sb	2	115	2.16	ppb	6.21	2.00	70 -	130	108.2	
137	Ba	2	115	5.15	ppb	2.39	5.00	70 -	130	103.1	
205	Tl	2	209	1.16	ppb	4.06	1.00	70 -	130	116.0	
208	Pb	2	209	1.13	ppb	3.97	1.00	70 -	130	112.8	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	-1665.19	1.92	36.77	-4528.7	70 -	120		ISFail
45	Sc	1	137764.58	0.23	157844.06	87.3	70 -	120		
45	Sc	2	4780224.00	2.24	5827273.50	82.0	70 -	120		
72	Ge	1	75130.02	0.59	86621.49	86.7	70 -	120		
115	In	2	4390816.00	1.02	6276207.00	70.0	70 -	120		ISFail
209	Bi	2	3321052.50	0.99	4446753.50	74.7	70 -	120		

CCB QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\111_CCB.D\111_CCB.D#

Date Acquired:	Aug 10 2016 10:17 pm	Sample Name:	**CCB4-160810**
Acq. Method:	DHL_3Fe.M	Misc Info:	CCB ICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 10 2016 01:05 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	MDL S	MDL Aq	Flag
7	Li	2	45	0.164	ppb	8.69	2.00	2.00	
9	Be	2	45	0.037	ppb	3.24	0.40	0.30	
11	B	2	45	2.157	ppb	3.64	10.00	10.00	
23	Na	1	45	-1.930	ppb	3.28	50.00	#####	
24	Mg	1	45	4.110	ppb	10.98	50.00	#####	
27	Al	1	45	14.430	ppb	3.29	50.00	10.00	FailAq
39	K	1	45	5.803	ppb	1.18	50.00	#####	
44	Ca	2	45	35.540	ppb	10.10	50.00	#####	
47	Ti	1	45	0.026	ppb	49.50	4.00	3.00	
51	V	1	45	0.037	ppb	3.23	4.00	3.00	
52	Cr	1	45	0.045	ppb	7.13	2.00	2.00	
55	Mn	1	45	0.194	ppb	8.10	2.00	3.00	
56	Fe	1	72	6.910	ppb	16.03	50.00	30.00	
59	Co	1	72	0.054	ppb	8.15	2.00	3.00	
60	Ni	1	72	0.140	ppb	21.11	2.00	3.00	
63	Cu	1	72	0.110	ppb	5.52	2.00	2.00	
66	Zn	1	72	1.683	ppb	7.16	4.00	2.00	
75	As	1	72	-0.095	ppb	1.27	2.00	2.00	
78	Se	1	72	0.194	ppb	30.31	0.60	2.00	
88	Sr	2	115	0.195	ppb	8.97	4.00	3.00	
95	Mo	2	115	0.089	ppb	19.47	2.00	2.00	
107	Ag	2	115	0.047	ppb	16.46	0.40	1.00	
111	Cd	2	115	0.039	ppb	51.20	0.40	0.30	
118	Sn	2	115	0.123	ppb	8.38	20.00	3.00	
121	Sb	2	115	0.078	ppb	16.37	2.00	0.80	
137	Ba	2	115	0.145	ppb	19.18	2.00	3.00	
205	Tl	2	209	0.152	ppb	5.16	2.00	0.50	
208	Pb	2	209	0.090	ppb	16.51	0.40	0.30	

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	RHigh	-25.45	25.01	36.77	-69.2	70 - 120	ISFail
45	Sc	1		131554.20	1.30	157844.06	83.3	70 - 120	
45	Sc	2		4746576.00	1.40	5827273.50	81.5	70 - 120	
72	Ge	1		72017.73	1.52	86621.49	83.1	70 - 120	
115	In	2		4499025.50	0.66	6276207.00	71.7	70 - 120	
209	Bi	2		3373030.30	0.33	4446753.50	75.9	70 - 120	

CCV QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\123CCV1.D\123CCV1.D#

Date Acquired:	Aug 10 2016 11:28 pm	Sample Name:	**CCV5-160810**
Acq. Method:	DHL_3Fe.M	Misc Info:	CCV ICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 10 2016 01:05 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	210.60	ppb	0.35	200.00	90 -	110	105.3	
9	Be	2	45	196.10	ppb	1.31	200.00	90 -	110	98.1	
11	B	2	45	174.50	ppb	1.75	200.00	90 -	110	87.3	Fail
23	Na	1	45	5658.00	ppb	2.86	5000.00	90 -	110	113.2	Fail
24	Mg	1	45	5324.00	ppb	3.40	5000.00	90 -	110	106.5	
27	Al	1	45	5362.00	ppb	3.68	5000.00	90 -	110	107.2	
39	K	1	45	5447.00	ppb	2.52	5000.00	90 -	110	108.9	
44	Ca	2	45	5831.00	ppb	4.15	5000.00	90 -	110	116.6	Fail
47	Ti	1	45	206.10	ppb	3.61	200.00	90 -	110	103.1	
51	V	1	45	211.60	ppb	3.52	200.00	90 -	110	105.8	
52	Cr	1	45	211.50	ppb	4.22	200.00	90 -	110	105.8	
55	Mn	1	45	211.10	ppb	3.28	200.00	90 -	110	105.6	
56	Fe	1	72	5255.00	ppb	3.21	5000.00	90 -	110	105.1	
59	Co	1	72	207.90	ppb	3.00	200.00	90 -	110	104.0	
60	Ni	1	72	202.80	ppb	3.17	200.00	90 -	110	101.4	
63	Cu	1	72	205.70	ppb	3.01	200.00	90 -	110	102.9	
66	Zn	1	72	210.90	ppb	3.41	200.00	90 -	110	105.5	
75	As	1	72	213.40	ppb	2.48	200.00	90 -	110	106.7	
78	Se	1	72	208.50	ppb	1.71	200.00	90 -	110	104.3	
88	Sr	2	115	234.60	ppb	1.39	200.00	90 -	110	117.3	Fail
95	Mo	2	115	217.80	ppb	1.43	200.00	90 -	110	108.9	
107	Ag	2	115	204.30	ppb	1.25	200.00	90 -	110	102.2	
111	Cd	2	115	207.30	ppb	0.91	200.00	90 -	110	103.7	
118	Sn	2	115	206.30	ppb	1.06	200.00	90 -	110	103.2	
121	Sb	2	115	207.70	ppb	0.87	200.00	90 -	110	103.9	
137	Ba	2	115	203.20	ppb	1.11	200.00	90 -	110	101.6	
205	Tl	2	209	213.80	ppb	0.83	200.00	90 -	110	106.9	
208	Pb	2	209	202.00	ppb	1.05	200.00	90 -	110	101.0	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	-61362.46	1.49	36.77	-166883.7	70 -	120		ISFail
45	Sc	1	131068.99	1.04	157844.06	83.0	70 -	120		
45	Sc	2	5058765.00	2.37	5827273.50	86.8	70 -	120		
72	Ge	1	72377.49	0.37	86621.49	83.6	70 -	120		
115	In	2	4754028.50	1.42	6276207.00	75.7	70 -	120		
209	Bi	2	3357645.50	1.01	4446753.50	75.5	70 -	120		

CCV QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\125LCVL.D\125LCVL.D#

Date Acquired:	Aug 10 2016 11:40 pm	Sample Name:	**LCVL5-160810**
Acq. Method:	DHL_3Fe.M	Misc Info:	LCVLICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 10 2016 01:05 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	10.23	ppb	1.06	10.00	70 -	130	102.3	
9	Be	2	45	0.96	ppb	2.65	1.00	70 -	130	96.0	
11	B	2	45	18.18	ppb	1.92	20.00	70 -	130	90.9	
23	Na	1	45	97.71	ppb	1.46	100.00	70 -	130	97.7	
24	Mg	1	45	107.00	ppb	2.43	100.00	70 -	130	107.0	
27	Al	1	45	111.50	ppb	4.90	100.00	70 -	130	111.5	
39	K	1	45	119.80	ppb	0.54	100.00	70 -	130	119.8	
44	Ca	2	45	111.50	ppb	1.46	100.00	70 -	130	111.5	
47	Ti	1	45	5.29	ppb	6.64	5.00	70 -	130	105.8	
51	V	1	45	1.06	ppb	4.61	1.00	70 -	130	106.4	
52	Cr	1	45	5.21	ppb	2.52	5.00	70 -	130	104.2	
55	Mn	1	45	5.25	ppb	0.68	5.00	70 -	130	105.1	
56	Fe	1	72	111.40	ppb	0.75	100.00	70 -	130	111.4	
59	Co	1	72	5.00	ppb	2.93	5.00	70 -	130	100.0	
60	Ni	1	72	4.89	ppb	3.54	5.00	70 -	130	97.8	
63	Cu	1	72	5.04	ppb	3.21	5.00	70 -	130	100.8	
66	Zn	1	72	6.33	ppb	9.56	5.00	70 -	130	126.6	
75	As	1	72	5.23	ppb	2.97	5.00	70 -	130	104.6	
78	Se	1	72	5.53	ppb	4.34	5.00	70 -	130	110.5	
88	Sr	2	115	5.63	ppb	1.85	5.00	70 -	130	112.6	
95	Mo	2	115	5.34	ppb	1.07	5.00	70 -	130	106.8	
107	Ag	2	115	2.03	ppb	1.25	2.00	70 -	130	101.7	
111	Cd	2	115	1.03	ppb	11.14	1.00	70 -	130	102.5	
118	Sn	2	115	5.19	ppb	1.53	5.00	70 -	130	103.7	
121	Sb	2	115	2.11	ppb	1.72	2.00	70 -	130	105.5	
137	Ba	2	115	5.01	ppb	2.70	5.00	70 -	130	100.1	
205	Tl	2	209	1.09	ppb	1.79	1.00	70 -	130	109.3	
208	Pb	2	209	1.01	ppb	2.28	1.00	70 -	130	101.4	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	-1542.50	1.52	36.77	-4195.0	70 -	120	ISFail
45	Sc	1	121017.99	1.30	157844.06	76.7	70 -	120	
45	Sc	2	4481616.50	1.79	5827273.50	76.9	70 -	120	
72	Ge	1	67685.16	1.41	86621.49	78.1	70 -	120	
115	In	2	4247796.50	1.14	6276207.00	67.7	70 -	120	ISFail
209	Bi	2	3125507.50	0.51	4446753.50	70.3	70 -	120	

CCB QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\126_CCB.D\126_CCB.D#

Date Acquired:	Aug 10 2016 11:46 pm	Sample Name:	**CCB5-160810**
Acq. Method:	DHL_3Fe.M	Misc Info:	CCB ICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 10 2016 01:05 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	MDL S	MDL Aq	Flag
7	Li	2	45	0.148	ppb	8.38	2.00	2.00	
9	Be	2	45	0.025	ppb	18.65	0.40	0.30	
11	B	2	45	1.565	ppb	4.50	10.00	10.00	
23	Na	1	45	1.739	ppb	4.45	50.00	#####	
24	Mg	1	45	2.696	ppb	8.82	50.00	#####	
27	Al	1	45	11.430	ppb	10.51	50.00	10.00	FailAq
39	K	1	45	14.090	ppb	0.96	50.00	#####	
44	Ca	2	45	29.550	ppb	5.75	50.00	#####	
47	Ti	1	45	0.071	ppb	21.65	4.00	3.00	
51	V	1	45	0.030	ppb	7.02	4.00	3.00	
52	Cr	1	45	0.044	ppb	17.18	2.00	2.00	
55	Mn	1	45	0.141	ppb	16.35	2.00	3.00	
56	Fe	1	72	2.865	ppb	27.61	50.00	30.00	
59	Co	1	72	0.042	ppb	13.43	2.00	3.00	
60	Ni	1	72	0.097	ppb	23.89	2.00	3.00	
63	Cu	1	72	0.060	ppb	10.37	2.00	2.00	
66	Zn	1	72	1.934	ppb	20.68	4.00	2.00	
75	As	1	72	-0.028	ppb	7.33	2.00	2.00	
78	Se	1	72	0.072	ppb	17.07	0.60	2.00	
88	Sr	2	115	0.161	ppb	9.19	4.00	3.00	
95	Mo	2	115	0.053	ppb	18.43	2.00	2.00	
107	Ag	2	115	0.047	ppb	18.20	0.40	1.00	
111	Cd	2	115	0.053	ppb	29.77	0.40	0.30	
118	Sn	2	115	0.100	ppb	8.92	20.00	3.00	
121	Sb	2	115	0.053	ppb	5.75	2.00	0.80	
137	Ba	2	115	0.133	ppb	8.81	2.00	3.00	
205	Tl	2	209	0.080	ppb	15.91	2.00	0.50	
208	Pb	2	209	0.055	ppb	9.48	0.40	0.30	

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	RHigh	-31.54	38.80	36.77	-85.8	70 - 120	ISFail
45	Sc	1		116900.03	1.10	157844.06	74.1	70 - 120	
45	Sc	2		4228102.00	2.48	5827273.50	72.6	70 - 120	
72	Ge	1		65115.57	1.51	86621.49	75.2	70 - 120	
115	In	2		3843549.00	1.56	6276207.00	61.2	70 - 120	ISFail
209	Bi	2		2891584.80	0.73	4446753.50	65.0	70 - 120	ISFail

PB QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\127__PB.D\127__PB.D#

Date Acquired:	Aug 10 2016 11:52 pm	Sample Name:	**MB-76717**
Acq. Method:	DHL_3Fe.M	Misc Info:	MBLKICPMS_TSDOD
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	Aug 10 2016 01:05 pm	Auto Dil:	Undiluted
Instrument:	ICPMS3	Total Dil:	5.00

QC Elements

Element				Conc.		RSD(%)	MDL	RL	Flag
7	Li	2	45	0.120	ppb	3.31	2.0	8.00	
9	Be	2	45	-0.005	ppb	52.92	0.4	1.20	
11	B	2	45	1.318	ppb	1.30	10.0	30.00	
23	Na	1	45	-3.849	ppb	2.35	50.0	#####	
24	Mg	1	45	5.857	ppb	15.41	50.0	#####	
27	Al	1	45	5.807	ppb	10.44	50.0	#####	
39	K	1	45	12.500	ppb	1.61	50.0	#####	
44	Ca	2	45	33.740	ppb	12.05	50.0	#####	
47	Ti	1	45	0.270	ppb	39.04	4.0	10.00	
51	V	1	45	-0.010	ppb	3.16	4.0	10.00	
52	Cr	1	45	0.090	ppb	5.51	2.0	8.00	
55	Mn	1	45	0.148	ppb	14.50	2.0	8.00	
56	Fe	1	72	3.974	ppb	12.27	50.0	#####	
59	Co	1	72	0.008	ppb	42.05	2.0	8.00	
60	Ni	1	72	0.112	ppb	14.17	2.0	8.00	
63	Cu	1	72	0.080	ppb	5.10	2.0	8.00	
66	Zn	1	72	2.845	ppb	4.76	4.0	10.00	
75	As	1	72	-0.132	ppb	4.15	2.0	4.00	
78	Se	1	72	0.081	ppb	4.98	0.6	2.00	
88	Sr	2	115	0.136	ppb	18.45	4.0	10.00	
95	Mo	2	115	0.034	ppb	26.06	2.0	8.00	
107	Ag	2	115	0.017	ppb	25.85	0.4	0.80	
111	Cd	2	115	0.000	ppb	102.56	0.4	1.20	
118	Sn	2	115	4.250	ppb	2.18	20.0	40.00	
121	Sb	2	115	0.017	ppb	8.80	2.0	4.00	
137	Ba	2	115	0.055	ppb	5.25	2.0	8.00	
205	Tl	2	209	0.046	ppb	14.02	2.0	4.00	
208	Pb	2	209	0.057	ppb	17.70	0.4	1.20	

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	RHig	-35.89	32.18	36.77	-97.6	70 - 120	ISFail
45	Sc	1		117485.54	1.06	157844.06	74.4	70 - 120	
45	Sc	2		4266841.50	1.11	5827273.50	73.2	70 - 120	
72	Ge	1		63498.12	0.61	86621.49	73.3	70 - 120	
115	In	2		3844484.00	1.16	6276207.00	61.3	70 - 120	ISFail
209	Bi	2		2890698.30	0.39	4446753.50	65.0	70 - 120	ISFail

LCS QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\128_LCS.D\128_LCS.D#

Date Acquired:	Aug 10 2016 11:58 pm	Sample Name:	**LCS-76717**
Acq. Method:	DHL_3Fe.M	Misc Info:	LCS ICPMS_TSDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	Aug 10 2016 01:05 pm	Auto Dil:	Undiluted
Instrument:	ICPMS3	Total Dil:	5.00

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	195.40	ppb	1.48	200.00	80 -	120	97.7	
9	Be	2	45	182.20	ppb	1.24	200.00	80 -	120	91.1	
11	B	2	45	163.70	ppb	1.14	200.00	80 -	120	81.9	
23	Na	1	45	5531.00	ppb	1.71	5000.00	80 -	120	110.6	
24	Mg	1	45	5236.00	ppb	2.31	5000.00	80 -	120	104.7	
27	Al	1	45	1073.00	ppb	2.29	1000.00	80 -	120	107.3	
39	K	1	45	5304.00	ppb	1.25	5000.00	80 -	120	106.1	
44	Ca	2	45	5410.00	ppb	2.20	5000.00	80 -	120	108.2	
47	Ti	1	45	208.50	ppb	1.93	200.00	80 -	120	104.3	
51	V	1	45	207.80	ppb	2.47	200.00	80 -	120	103.9	
52	Cr	1	45	209.00	ppb	2.79	200.00	80 -	120	104.5	
55	Mn	1	45	211.80	ppb	2.96	200.00	80 -	120	105.9	
56	Fe	1	72	1045.00	ppb	3.14	1000.00	80 -	120	104.5	
59	Co	1	72	208.40	ppb	2.27	200.00	80 -	120	104.2	
60	Ni	1	72	201.60	ppb	2.43	200.00	80 -	120	100.8	
63	Cu	1	72	205.90	ppb	2.13	200.00	80 -	120	103.0	
66	Zn	1	72	209.10	ppb	1.50	200.00	80 -	120	104.6	
75	As	1	72	206.90	ppb	1.83	200.00	80 -	120	103.5	
78	Se	1	72	194.40	ppb	1.22	200.00	80 -	120	97.2	
88	Sr	2	115	234.90	ppb	1.25	200.00	80 -	120	117.5	
95	Mo	2	115	218.10	ppb	1.47	200.00	80 -	120	109.1	
107	Ag	2	115	200.70	ppb	0.48	200.00	80 -	120	100.4	
111	Cd	2	115	199.60	ppb	0.51	200.00	80 -	120	99.8	
118	Sn	2	115	208.30	ppb	0.37	200.00	80 -	120	104.2	
121	Sb	2	115	203.40	ppb	0.36	200.00	80 -	120	101.7	
137	Ba	2	115	206.40	ppb	1.10	200.00	80 -	120	103.2	
205	Tl	2	209	197.60	ppb	0.56	200.00	80 -	120	98.8	
208	Pb	2	209	198.90	ppb	0.79	200.00	80 -	120	99.5	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	-48089.16	1.84	36.77	-130785.1	70 -	120	ISFail
45	Sc	1	116598.05	0.61	157844.06	73.9	70 -	120	
45	Sc	2	4236061.50	1.61	5827273.50	72.7	70 -	120	
72	Ge	1	62824.13	0.29	86621.49	72.5	70 -	120	
115	In	2	3863850.00	0.44	6276207.00	61.6	70 -	120	ISFail
209	Bi	2	2872098.30	0.71	4446753.50	64.6	70 -	120	ISFail

LCS QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\129_LCS.D\129_LCS.D#

Date Acquired:	Aug 11 2016 12:04 am	Sample Name:	**LCSD-76717**
Acq. Method:	DHL_3Fe.M	Misc Info:	LCSDICPMS_TSDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	Aug 10 2016 01:05 pm	Auto Dil:	Undiluted
Instrument:	ICPMS3	Total Dil:	5.00

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	196.50	ppb	0.44	200.00	80 -	120	98.3	
9	Be	2	45	183.70	ppb	1.17	200.00	80 -	120	91.9	
11	B	2	45	168.90	ppb	1.49	200.00	80 -	120	84.5	
23	Na	1	45	5467.00	ppb	2.51	5000.00	80 -	120	109.3	
24	Mg	1	45	5191.00	ppb	3.63	5000.00	80 -	120	103.8	
27	Al	1	45	1085.00	ppb	4.60	1000.00	80 -	120	108.5	
39	K	1	45	5367.00	ppb	1.63	5000.00	80 -	120	107.3	
44	Ca	2	45	5462.00	ppb	1.27	5000.00	80 -	120	109.2	
47	Ti	1	45	212.40	ppb	3.25	200.00	80 -	120	106.2	
51	V	1	45	205.10	ppb	3.06	200.00	80 -	120	102.6	
52	Cr	1	45	204.60	ppb	3.46	200.00	80 -	120	102.3	
55	Mn	1	45	209.60	ppb	2.68	200.00	80 -	120	104.8	
56	Fe	1	72	1027.00	ppb	2.73	1000.00	80 -	120	102.7	
59	Co	1	72	202.60	ppb	2.48	200.00	80 -	120	101.3	
60	Ni	1	72	197.70	ppb	2.03	200.00	80 -	120	98.9	
63	Cu	1	72	199.80	ppb	2.63	200.00	80 -	120	99.9	
66	Zn	1	72	205.00	ppb	3.14	200.00	80 -	120	102.5	
75	As	1	72	204.90	ppb	1.77	200.00	80 -	120	102.5	
78	Se	1	72	195.60	ppb	2.41	200.00	80 -	120	97.8	
88	Sr	2	115	236.90	ppb	1.01	200.00	80 -	120	118.5	
95	Mo	2	115	220.20	ppb	1.14	200.00	80 -	120	110.1	
107	Ag	2	115	202.90	ppb	1.12	200.00	80 -	120	101.5	
111	Cd	2	115	200.50	ppb	0.39	200.00	80 -	120	100.3	
118	Sn	2	115	210.80	ppb	0.56	200.00	80 -	120	105.4	
121	Sb	2	115	204.30	ppb	0.82	200.00	80 -	120	102.2	
137	Ba	2	115	208.20	ppb	1.21	200.00	80 -	120	104.1	
205	Tl	2	209	199.70	ppb	0.30	200.00	80 -	120	99.9	
208	Pb	2	209	201.30	ppb	0.36	200.00	80 -	120	100.7	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	-47244.52	0.58	36.77	-128488.0	70 -	120	ISFail
45	Sc	1	117346.59	0.88	157844.06	74.3	70 -	120	
45	Sc	2	4104465.00	1.66	5827273.50	70.4	70 -	120	
72	Ge	1	63277.79	0.46	86621.49	73.1	70 -	120	
115	In	2	3694957.50	0.65	6276207.00	58.9	70 -	120	ISFail
209	Bi	2	2771013.50	0.04	4446753.50	62.3	70 -	120	ISFail

DT QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\132DT1.D\132DT1.D#

Date Acquired:	Aug 11 2016 12:23 am	Sample Name:	**1607317-27A SD**
Acq. Method:	DHL_3Fe.M	Misc Info:	SD ICPMS_TSDOD1
Operator:	KL	Bench Diln:	25.00
Last Cal. Update:	Aug 10 2016 01:05 pm	Auto Diln:	Undiluted
Instrument:	ICPMS3	Total Diln:	25.00

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)	Rec(%)	Flag
7	Li	2	45	0.09	ppb	26.26	-8.87	90 - 110	-4.9	
9	Be	2	45	0.00	ppb	48.24	2.32	90 - 110	0.7	
11	B	2	45	1.78	ppb	2.10	56.74	90 - 110	15.7	
23	Na	1	45	-0.86	ppb	0.58	2146.00	90 - 110	-0.2	
24	Mg	1	45	7.61	ppb	13.12	13730.00	90 - 110	0.3	
27	Al	1	45	41.06	ppb	19.73	75820.00	90 - 110	0.3	
39	K	1	45	23.29	ppb	2.89	15520.00	90 - 110	0.8	
44	Ca	2	45	32.30	ppb	33.47	52160.00	90 - 110	0.3	
47	Ti	1	45	0.31	ppb	28.86	202.90	90 - 110	0.8	
51	V	1	45	-0.03	ppb	11.81	96.82	90 - 110	-0.2	
52	Cr	1	45	0.05	ppb	1.83	59.33	90 - 110	0.4	
55	Mn	1	45	0.48	ppb	11.22	572.40	90 - 110	0.4	
56	Fe	1	72	40.96	ppb	20.49	66040.00	90 - 110	0.3	
59	Co	1	72	0.02	ppb	30.81	23.38	90 - 110	0.5	
60	Ni	1	72	0.08	ppb	6.65	37.95	90 - 110	1.1	
63	Cu	1	72	0.58	ppb	5.42	22.50	90 - 110	12.9	
66	Zn	1	72	3.74	ppb	13.18	207.40	90 - 110	9.0	
75	As	1	72	-0.03	ppb	1.02	23.43	90 - 110	-0.6	
78	Se	1	72	0.27	ppb	22.93	13.08	90 - 110	10.1	
88	Sr	2	115	0.26	ppb	32.83	344.30	90 - 110	0.4	
95	Mo	2	115	0.05	ppb	53.69	1.79	90 - 110	15.1	
107	Ag	2	115	0.01	ppb	56.06	0.28	90 - 110	25.6	
111	Cd	2	115	0.02	ppb	48.31	1.13	90 - 110	9.5	
118	Sn	2	115	0.03	ppb	1.94	5.58	90 - 110	3.1	
121	Sb	2	115	0.06	ppb	34.44	4.91	90 - 110	5.6	
137	Ba	2	115	0.28	ppb	32.69	334.90	90 - 110	0.4	
205	Tl	2	209	0.11	ppb	5.04	0.78	90 - 110	67.8	
208	Pb	2	209	0.18	ppb	40.16	188.00	90 - 110	0.5	

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	RHig	-8.87	220.34	36.77	-24.1	70 -	120	ISFail
45	Sc	1		118966.98	1.35	157844.06	75.4	70 -	120	
45	Sc	2		3778620.30	2.77	5827273.50	64.8	70 -	120	ISFail
72	Ge	1		65575.34	0.94	86621.49	75.7	70 -	120	
115	In	2		3757943.30	1.69	6276207.00	59.9	70 -	120	ISFail
209	Bi	2		2916052.00	1.20	4446753.50	65.6	70 -	120	ISFail

ICSA QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\134ICSA.D\134ICSA.D#

Date Acquired:	Aug 11 2016 12:35 am	Sample Name:	**ICSA-160810**
Acq. Method:	DHL_3Fe.M	Misc Info:	ICSAICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 10 2016 01:05 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	RL S	RL Aq	Flag
7	Li	2	45	0.148	ppb	5.27	8.00	5.00	
9	Be	2	45	0.012	ppb	17.29	0.32	0.80	
11	B	2	45	2.787	ppb	3.51	30.00	30.00	
23	Na	1	45	100200.000	ppb	2.75	#######	#######	
24	Mg	1	45	89250.000	ppb	3.62	#######	#######	
27	Al	1	45	102200.000	ppb	4.62	#######	#######	
39	K	1	45	98040.000	ppb	3.21	#######	#######	
44	Ca	2	45	94350.000	ppb	1.94	#######	#######	
47	Ti	1	45	1940.000	ppb	5.51	10.00	10.00	
51	V	1	45	0.074	ppb	17.42	10.00	10.00	
52	Cr	1	45	0.857	ppb	1.26	8.00	5.00	
55	Mn	1	45	1.183	ppb	8.90	8.00	10.00	
56	Fe	1	72	91530.000	ppb	4.75	#######	#######	
59	Co	1	72	1.239	ppb	1.88	8.00	10.00	
60	Ni	1	72	0.424	ppb	12.69	8.00	10.00	
63	Cu	1	72	1.983	ppb	2.45	8.00	10.00	
66	Zn	1	72	3.395	ppb	3.97	10.00	5.00	
75	As	1	72	0.410	ppb	7.87	4.00	5.00	
78	Se	1	72	0.388	ppb	8.64	2.00	5.00	
88	Sr	2	115	1.323	ppb	5.72	10.00	10.00	
95	Mo	2	115	2059.000	ppb	0.60	8.00	5.00	
107	Ag	2	115	0.098	ppb	10.88	0.80	2.00	
111	Cd	2	115	0.207	ppb	51.36	1.20	1.00	
118	Sn	2	115	0.139	ppb	4.75	10.00	10.00	
121	Sb	2	115	0.150	ppb	11.65	4.00	2.50	
137	Ba	2	115	0.673	ppb	13.18	8.00	10.00	
205	Tl	2	209	0.074	ppb	0.78	4.00	1.50	
208	Pb	2	209	0.368	ppb	6.04	1.20	1.00	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	-17.77	29.61	36.77	-48.3	70 -	120	ISFail
45	Sc	1	110337.30	1.98	157844.06	69.9	70 -	120	ISFail
45	Sc	2	3956714.00	1.83	5827273.50	67.9	70 -	120	ISFail
72	Ge	1	60022.06	2.41	86621.49	69.3	70 -	120	ISFail
115	In	2	3977300.80	0.48	6276207.00	63.4	70 -	120	ISFail
209	Bi	2	2720411.50	0.56	4446753.50	61.2	70 -	120	ISFail

ICS-AB QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\135ICSB.D\135ICSB.D#

Date Acquired:	Aug 11 2016 12:41 am	Sample Name:	**ICSAB-160810**
Acq. Method:	DHL_3Fe.M	Misc Info:	ICSBICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 10 2016 01:05 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)			Flag
7	Li	2	45	0.13	ppb	8.72	---	80 -	120		
9	Be	2	45	0.00	ppb	27.94	---	80 -	120		
11	B	2	45	2.40	ppb	0.91	---	80 -	120		
23	Na	1	45	94680.00	ppb	2.48	100000.00	80 -	120		
24	Mg	1	45	89700.00	ppb	3.60	100000.00	80 -	120		
27	Al	1	45	100500.00	ppb	3.98	100000.00	80 -	120		
39	K	1	45	97910.00	ppb	1.39	100000.00	80 -	120		
44	Ca	2	45	94370.00	ppb	2.09	100000.00	80 -	120		
47	Ti	1	45	1944.00	ppb	3.44	---	80 -	120		
51	V	1	45	39.30	ppb	4.47	40.00	80 -	120		
52	Cr	1	45	20.00	ppb	4.12	20.00	80 -	120		
55	Mn	1	45	19.65	ppb	2.74	20.00	80 -	120		
56	Fe	1	72	89870.00	ppb	3.51	100000.00	80 -	120		
59	Co	1	72	37.04	ppb	2.88	40.00	80 -	120		
60	Ni	1	72	33.35	ppb	3.10	40.00	80 -	120		
63	Cu	1	72	18.34	ppb	2.29	20.00	80 -	120		
66	Zn	1	72	18.88	ppb	8.37	20.00	80 -	120		
75	As	1	72	19.81	ppb	3.17	20.00	80 -	120		
78	Se	1	72	18.11	ppb	5.90	20.00	80 -	120		
88	Sr	2	115	1.11	ppb	2.71	---	80 -	120		
95	Mo	2	115	2060.00	ppb	0.90	---	80 -	120		
107	Ag	2	115	17.56	ppb	1.58	20.00	80 -	120		
111	Cd	2	115	9.05	ppb	3.08	10.00	80 -	120		
118	Sn	2	115	0.31	ppb	13.19	---	80 -	120		
121	Sb	2	115	0.06	ppb	8.30	---	80 -	120		
137	Ba	2	115	0.43	ppb	4.42	---	80 -	120		
205	Tl	2	209	0.07	ppb	19.28	---	80 -	120		
208	Pb	2	209	0.21	ppb	3.67	---	80 -	120		

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	-28.35	61.91	36.77	-77.1	70 -	120		ISFail
45	Sc	1	108485.65	0.93	157844.06	68.7	70 -	120		ISFail
45	Sc	2	4039613.00	2.23	5827273.50	69.3	70 -	120		ISFail
72	Ge	1	59653.77	0.92	86621.49	68.9	70 -	120		ISFail
115	In	2	4029364.00	0.57	6276207.00	64.2	70 -	120		ISFail
209	Bi	2	2705154.30	1.27	4446753.50	60.8	70 -	120		ISFail

PDS QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\147_PDS.D\147_PDS.D#

Date Acquired:	Aug 11 2016 01:52 am	Sample Name:	**1607317-27A PDS**
Acq. Method:	DHL_3Fe.M	Misc Info:	PDS ICPMS_TSDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	Aug 10 2016 01:05 pm	Auto Diln:	Undiluted
Instrument:	ICPMS3	Total Diln:	5.00

QC Elements

Element				Conc.		RSD(%)	Ref Conc	Spike	Range	Rec(%)	Flag
7	Li	2	45	267.00	ppb	1.65	-41710.06	200	75-125	######	Fail
9	Be	2	45	173.50	ppb	1.91	2.32	200	75-125	85.6	
11	B	2	45	217.60	ppb	2.05	56.74	200	75-125	80.4	
23	Na	1	45	7659.00	ppb	1.77	2146.00	5000	75-125	110.3	
24	Mg	1	45	19900.00	ppb	3.73	13730.00	5000	75-125	123.4	
27	Al	1	45	84980.00	ppb	4.87	75820.00	5000	75-125	183.2	Fail
39	K	1	45	22650.00	ppb	2.81	15520.00	5000	75-125	142.6	Fail
44	Ca	2	45	61490.00	ppb	1.99	52160.00	5000	75-125	186.6	Fail
47	Ti	1	45	409.70	ppb	2.36	202.90	200	75-125	103.4	
51	V	1	45	302.60	ppb	2.84	96.82	200	75-125	102.9	
52	Cr	1	45	263.40	ppb	3.44	59.33	200	75-125	102.0	
55	Mn	1	45	806.20	ppb	3.10	572.40	200	75-125	116.9	
56	Fe	1	72	77190.00	ppb	3.17	66040.00	5000	75-125	223.0	Fail
59	Co	1	72	220.70	ppb	2.58	23.38	200	75-125	98.7	
60	Ni	1	72	228.70	ppb	2.45	37.95	200	75-125	95.4	
63	Cu	1	72	208.50	ppb	2.61	22.50	200	75-125	93.0	
66	Zn	1	72	402.20	ppb	2.24	207.40	200	75-125	97.4	
75	As	1	72	214.10	ppb	2.82	23.43	200	75-125	95.3	
78	Se	1	72	189.90	ppb	1.85	13.08	200	75-125	88.4	
88	Sr	2	115	626.30	ppb	1.07	344.30	200	75-125	141.0	Fail
95	Mo	2	115	212.40	ppb	1.42	1.79	200	75-125	105.3	
107	Ag	2	115	188.60	ppb	1.47	0.28	200	75-125	94.2	
111	Cd	2	115	185.10	ppb	1.14	1.13	200	75-125	92.0	
118	Sn	2	115	202.80	ppb	1.31	5.58	200	75-125	98.6	
121	Sb	2	115	196.10	ppb	1.14	4.91	200	75-125	95.6	
137	Ba	2	115	542.20	ppb	0.72	334.90	200	75-125	103.7	
205	Tl	2	209	192.70	ppb	0.60	0.78	200	75-125	96.0	
208	Pb	2	209	410.40	ppb	0.71	188.00	200	75-125	111.2	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	-41710.06	0.74	36.77	-113436.3	70	-	120	ISFail
45	Sc	1	121423.96	1.02	157844.06	76.9	70	-	120	
45	Sc	2	4688560.50	2.06	5827273.50	80.5	70	-	120	
72	Ge	1	64344.19	0.92	86621.49	74.3	70	-	120	
115	In	2	4008963.80	1.37	6276207.00	63.9	70	-	120	ISFail
209	Bi	2	2737126.00	0.61	4446753.50	61.6	70	-	120	ISFail

MS/MSD QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\148_MS.D\148_MS.D#

Date Acquired:	Aug 11 2016 01:58 am	Sample Name:	**1607317-27A MS**
Acq. Method:	DHL_3Fe.M	Misc Info:	MS ICPMS_TSDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	Aug 10 2016 01:05 pm	Auto Diln:	Undiluted
Instrument:	ICPMS3	Total Diln:	5.00

QC Elements

Element				Conc.		RSD(%)	Ref Conc	Spike	Range	Rec(%)	Flag
7	Li	2	45	273.90	ppb	1.85	########	200	80-120	######	Fail
9	Be	2	45	177.00	ppb	1.77	2.32	200	80-120	87.3	
11	B	2	45	224.00	ppb	2.02	56.74	200	80-120	83.6	
23	Na	1	45	7854.00	ppb	1.69	2146.00	5000	80-120	114.2	
24	Mg	1	45	20730.00	ppb	2.31	13730.00	5000	80-120	140.0	Fail
27	Al	1	45	87760.00	ppb	2.78	75820.00	1000	80-120	1194.0	Fail
39	K	1	45	23740.00	ppb	0.55	15520.00	5000	80-120	164.4	Fail
44	Ca	2	45	59630.00	ppb	2.58	52160.00	5000	80-120	149.4	Fail
47	Ti	1	45	482.50	ppb	2.15	202.90	200	80-120	139.8	Fail
51	V	1	45	316.30	ppb	2.93	96.82	200	80-120	109.7	
52	Cr	1	45	269.00	ppb	3.22	59.33	200	80-120	104.8	
55	Mn	1	45	806.50	ppb	2.54	572.40	200	80-120	117.0	
56	Fe	1	72	76600.00	ppb	2.98	66040.00	1000	80-120	1056.0	Fail
59	Co	1	72	228.60	ppb	2.46	23.38	200	80-120	102.6	
60	Ni	1	72	235.80	ppb	2.30	37.95	200	80-120	98.9	
63	Cu	1	72	219.20	ppb	1.88	22.50	200	80-120	98.4	
66	Zn	1	72	419.00	ppb	2.18	207.40	200	80-120	105.8	
75	As	1	72	222.90	ppb	2.00	23.43	200	80-120	99.7	
78	Se	1	72	196.20	ppb	0.96	13.08	200	80-120	91.6	
88	Sr	2	115	755.60	ppb	0.85	344.30	200	80-120	205.7	Fail
95	Mo	2	115	208.00	ppb	1.46	1.79	200	80-120	103.1	
107	Ag	2	115	194.20	ppb	1.58	0.28	200	80-120	97.0	
111	Cd	2	115	194.00	ppb	1.19	1.13	200	80-120	96.4	
118	Sn	2	115	209.20	ppb	1.17	5.58	200	80-120	101.8	
121	Sb	2	115	74.89	ppb	1.17	4.91	200	80-120	35.0	Fail
137	Ba	2	115	554.70	ppb	0.90	334.90	200	80-120	109.9	
205	Tl	2	209	201.10	ppb	1.22	0.78	200	80-120	100.2	
208	Pb	2	209	719.70	ppb	1.35	188.00	200	80-120	265.9	Fail

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	-61257.54	1.34	36.77	########	70	-	120	ISFail
45	Sc	1	118607.66	0.19	157844.06	75.1	70	-	120	
45	Sc	2	4539775.00	1.83	5827273.50	77.9	70	-	120	
72	Ge	1	62980.31	0.66	86621.49	72.7	70	-	120	
115	In	2	3899716.50	1.12	6276207.00	62.1	70	-	120	ISFail
209	Bi	2	2707252.50	0.85	4446753.50	60.9	70	-	120	ISFail

MS/MSD QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\149_MS.D\149_MS.D#

Date Acquired:	Aug 11 2016 02:04 am	Sample Name:	**1607317-27A MSD**
Acq. Method:	DHL_3Fe.M	Misc Info:	MSD ICPMS_TSDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	Aug 10 2016 01:05 pm	Auto Diln:	Undiluted
Instrument:	ICPMS3	Total Diln:	5.00

QC Elements

Element				Conc.		RSD(%)	Ref Conc	Spike	Range	Rec(%)	Flag
7	Li	2	45	254.50	ppb	1.19	########	200	80-120	######	Fail
9	Be	2	45	169.60	ppb	1.49	2.32	200	80-120	83.6	
11	B	2	45	208.50	ppb	1.98	56.74	200	80-120	75.9	Fail
23	Na	1	45	7422.00	ppb	2.19	2146.00	5000	80-120	105.5	
24	Mg	1	45	18870.00	ppb	2.25	13730.00	5000	80-120	102.8	
27	Al	1	45	78910.00	ppb	3.13	75820.00	1000	80-120	309.0	Fail
39	K	1	45	21960.00	ppb	2.38	15520.00	5000	80-120	128.8	Fail
44	Ca	2	45	51140.00	ppb	2.46	52160.00	5000	80-120	-20.4	Fail
47	Ti	1	45	453.70	ppb	2.47	202.90	200	80-120	125.4	Fail
51	V	1	45	298.40	ppb	1.60	96.82	200	80-120	100.8	
52	Cr	1	45	256.60	ppb	2.26	59.33	200	80-120	98.6	
55	Mn	1	45	743.70	ppb	1.87	572.40	200	80-120	85.6	
56	Fe	1	72	66890.00	ppb	2.49	66040.00	1000	80-120	85.0	
59	Co	1	72	219.90	ppb	1.79	23.38	200	80-120	98.3	
60	Ni	1	72	226.70	ppb	1.66	37.95	200	80-120	94.4	
63	Cu	1	72	210.50	ppb	1.19	22.50	200	80-120	94.0	
66	Zn	1	72	394.50	ppb	1.57	207.40	200	80-120	93.6	
75	As	1	72	218.40	ppb	1.62	23.43	200	80-120	97.5	
78	Se	1	72	193.50	ppb	2.07	13.08	200	80-120	90.2	
88	Sr	2	115	607.10	ppb	1.45	344.30	200	80-120	131.4	Fail
95	Mo	2	115	202.50	ppb	1.64	1.79	200	80-120	100.4	
107	Ag	2	115	188.80	ppb	1.79	0.28	200	80-120	94.3	
111	Cd	2	115	189.20	ppb	1.88	1.13	200	80-120	94.0	
118	Sn	2	115	203.60	ppb	1.80	5.58	200	80-120	99.0	
121	Sb	2	115	74.01	ppb	1.41	4.91	200	80-120	34.6	Fail
137	Ba	2	115	536.50	ppb	1.02	334.90	200	80-120	100.8	
205	Tl	2	209	196.70	ppb	1.10	0.78	200	80-120	98.0	
208	Pb	2	209	625.80	ppb	0.93	188.00	200	80-120	218.9	Fail

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-56722.36	0.54	36.77	########	70 - 120	ISFail
45	Sc	1	118827.66	0.62	157844.06	75.3	70 - 120	
45	Sc	2	4419396.50	2.53	5827273.50	75.8	70 - 120	
72	Ge	1	63089.75	0.46	86621.49	72.8	70 - 120	
115	In	2	3814919.50	0.92	6276207.00	60.8	70 - 120	ISFail
209	Bi	2	2663219.50	0.85	4446753.50	59.9	70 - 120	ISFail

CCV QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\150CCV1.D\150CCV1.D#

Date Acquired:	Aug 11 2016 02:10 am	Sample Name:	**CCV6-160810**
Acq. Method:	DHL_3Fe.M	Misc Info:	CCV ICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 10 2016 01:05 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	205.40	ppb	1.33	200.00	90 -	110	102.7	
9	Be	2	45	189.30	ppb	0.57	200.00	90 -	110	94.7	
11	B	2	45	171.10	ppb	0.44	200.00	90 -	110	85.6	Fail
23	Na	1	45	5643.00	ppb	3.00	5000.00	90 -	110	112.9	Fail
24	Mg	1	45	5337.00	ppb	3.67	5000.00	90 -	110	106.7	
27	Al	1	45	5385.00	ppb	3.61	5000.00	90 -	110	107.7	
39	K	1	45	5506.00	ppb	0.64	5000.00	90 -	110	110.1	Fail
44	Ca	2	45	5760.00	ppb	0.87	5000.00	90 -	110	115.2	Fail
47	Ti	1	45	206.80	ppb	5.45	200.00	90 -	110	103.4	
51	V	1	45	207.60	ppb	3.53	200.00	90 -	110	103.8	
52	Cr	1	45	208.20	ppb	3.58	200.00	90 -	110	104.1	
55	Mn	1	45	211.90	ppb	3.31	200.00	90 -	110	106.0	
56	Fe	1	72	5265.00	ppb	3.99	5000.00	90 -	110	105.3	
59	Co	1	72	204.20	ppb	3.04	200.00	90 -	110	102.1	
60	Ni	1	72	198.50	ppb	3.57	200.00	90 -	110	99.3	
63	Cu	1	72	203.40	ppb	2.98	200.00	90 -	110	101.7	
66	Zn	1	72	210.50	ppb	3.03	200.00	90 -	110	105.3	
75	As	1	72	210.20	ppb	2.77	200.00	90 -	110	105.1	
78	Se	1	72	208.40	ppb	1.66	200.00	90 -	110	104.2	
88	Sr	2	115	252.30	ppb	0.55	200.00	90 -	110	126.2	Fail
95	Mo	2	115	231.70	ppb	1.02	200.00	90 -	110	115.9	Fail
107	Ag	2	115	212.50	ppb	0.97	200.00	90 -	110	106.3	
111	Cd	2	115	207.00	ppb	0.25	200.00	90 -	110	103.5	
118	Sn	2	115	206.10	ppb	0.54	200.00	90 -	110	103.1	
121	Sb	2	115	204.70	ppb	0.94	200.00	90 -	110	102.4	
137	Ba	2	115	205.20	ppb	0.10	200.00	90 -	110	102.6	
205	Tl	2	209	200.90	ppb	0.12	200.00	90 -	110	100.5	
208	Pb	2	209	202.10	ppb	0.09	200.00	90 -	110	101.1	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	-50194.16	1.59	36.77	-136509.9	70 -	120		ISFail
45	Sc	1	116261.23	0.18	157844.06	73.7	70 -	120		
45	Sc	2	4258000.50	1.15	5827273.50	73.1	70 -	120		
72	Ge	1	63651.25	0.27	86621.49	73.5	70 -	120		
115	In	2	3531460.00	0.23	6276207.00	56.3	70 -	120		ISFail
209	Bi	2	2622581.80	0.69	4446753.50	59.0	70 -	120		ISFail

CCV QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\152LCVL.D\152LCVL.D#

Date Acquired:	Aug 11 2016 02:22 am	Sample Name:	**LCVL-160810**
Acq. Method:	DHL_3Fe.M	Misc Info:	LCVLICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 10 2016 01:05 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	9.97	ppb	1.83	10.00	70 -	130	99.7	
9	Be	2	45	0.96	ppb	3.06	1.00	70 -	130	96.2	
11	B	2	45	18.29	ppb	1.87	20.00	70 -	130	91.5	
23	Na	1	45	100.00	ppb	2.02	100.00	70 -	130	100.0	
24	Mg	1	45	112.30	ppb	2.09	100.00	70 -	130	112.3	
27	Al	1	45	125.70	ppb	4.22	100.00	70 -	130	125.7	
39	K	1	45	120.50	ppb	3.05	100.00	70 -	130	120.5	
44	Ca	2	45	111.90	ppb	9.17	100.00	70 -	130	111.9	
47	Ti	1	45	5.38	ppb	16.48	5.00	70 -	130	107.7	
51	V	1	45	1.18	ppb	3.27	1.00	70 -	130	118.4	
52	Cr	1	45	5.54	ppb	4.23	5.00	70 -	130	110.8	
55	Mn	1	45	5.50	ppb	4.33	5.00	70 -	130	109.9	
56	Fe	1	72	123.40	ppb	3.50	100.00	70 -	130	123.4	
59	Co	1	72	5.28	ppb	3.16	5.00	70 -	130	105.5	
60	Ni	1	72	5.10	ppb	2.38	5.00	70 -	130	102.0	
63	Cu	1	72	5.26	ppb	4.66	5.00	70 -	130	105.2	
66	Zn	1	72	5.84	ppb	8.62	5.00	70 -	130	116.7	
75	As	1	72	5.33	ppb	3.62	5.00	70 -	130	106.6	
78	Se	1	72	5.72	ppb	1.59	5.00	70 -	130	114.5	
88	Sr	2	115	6.05	ppb	2.70	5.00	70 -	130	120.9	
95	Mo	2	115	5.55	ppb	1.83	5.00	70 -	130	110.9	
107	Ag	2	115	2.20	ppb	3.25	2.00	70 -	130	109.9	
111	Cd	2	115	1.08	ppb	5.25	1.00	70 -	130	108.0	
118	Sn	2	115	5.23	ppb	1.32	5.00	70 -	130	104.7	
121	Sb	2	115	2.13	ppb	3.23	2.00	70 -	130	106.5	
137	Ba	2	115	5.21	ppb	1.93	5.00	70 -	130	104.2	
205	Tl	2	209	1.23	ppb	4.01	1.00	70 -	130	122.6	
208	Pb	2	209	1.12	ppb	5.44	1.00	70 -	130	111.6	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	-1538.31	4.09	36.77	-4183.7	70 -	120		ISFail
45	Sc	1	112526.34	1.11	157844.06	71.3	70 -	120		
45	Sc	2	4205417.50	4.05	5827273.50	72.2	70 -	120		
72	Ge	1	62249.54	1.83	86621.49	71.9	70 -	120		
115	In	2	3610795.80	3.69	6276207.00	57.5	70 -	120		ISFail
209	Bi	2	2723052.00	3.22	4446753.50	61.2	70 -	120		ISFail

CCB QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\153_CCB.D\153_CCB.D#

Date Acquired:	Aug 11 2016 02:28 am	Sample Name:	**CCB6-160810**
Acq. Method:	DHL_3Fe.M	Misc Info:	CCB ICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 10 2016 01:05 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	MDL S	MDL Aq	Flag
7	Li	2	45	0.152	ppb	8.84	2.00	2.00	
9	Be	2	45	0.052	ppb	13.57	0.40	0.30	
11	B	2	45	1.840	ppb	2.23	10.00	10.00	
23	Na	1	45	-6.216	ppb	3.71	50.00	#####	
24	Mg	1	45	3.115	ppb	6.08	50.00	#####	
27	Al	1	45	14.400	ppb	4.61	50.00	10.00	FailAq
39	K	1	45	10.100	ppb	3.52	50.00	#####	
44	Ca	2	45	28.190	ppb	10.12	50.00	#####	
47	Ti	1	45	-0.007	ppb	34.64	4.00	3.00	
51	V	1	45	0.051	ppb	3.74	4.00	3.00	
52	Cr	1	45	0.033	ppb	3.46	2.00	2.00	
55	Mn	1	45	0.165	ppb	10.60	2.00	3.00	
56	Fe	1	72	5.592	ppb	5.66	50.00	30.00	
59	Co	1	72	0.056	ppb	7.94	2.00	3.00	
60	Ni	1	72	0.137	ppb	10.04	2.00	3.00	
63	Cu	1	72	0.099	ppb	8.51	2.00	2.00	
66	Zn	1	72	1.595	ppb	15.95	4.00	2.00	
75	As	1	72	-0.052	ppb	5.78	2.00	2.00	
78	Se	1	72	0.121	ppb	12.49	0.60	2.00	
88	Sr	2	115	0.208	ppb	8.92	4.00	3.00	
95	Mo	2	115	0.100	ppb	12.65	2.00	2.00	
107	Ag	2	115	0.057	ppb	16.66	0.40	1.00	
111	Cd	2	115	0.018	ppb	68.71	0.40	0.30	
118	Sn	2	115	0.104	ppb	7.21	20.00	3.00	
121	Sb	2	115	0.062	ppb	13.66	2.00	0.80	
137	Ba	2	115	0.166	ppb	6.44	2.00	3.00	
205	Tl	2	209	0.153	ppb	5.46	2.00	0.50	
208	Pb	2	209	0.102	ppb	12.44	0.40	0.30	

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	RHigh	-27.08	62.99	36.77	-73.7	70 - 120	ISFail
45	Sc	1		118991.57	1.04	157844.06	75.4	70 - 120	
45	Sc	2		4196573.50	2.04	5827273.50	72.0	70 - 120	
72	Ge	1		65588.79	0.94	86621.49	75.7	70 - 120	
115	In	2		3586732.50	0.96	6276207.00	57.1	70 - 120	ISFail
209	Bi	2		2712654.30	0.77	4446753.50	61.0	70 - 120	ISFail

CCV QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\165CCV1.D\165CCV1.D#

Date Acquired:	Aug 11 2016 03:40 am	Sample Name:	**CCV7-160810**
Acq. Method:	DHL_3Fe.M	Misc Info:	CCV ICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 10 2016 01:05 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	189.40	ppb	1.03	200.00	90 -	110	94.7	
9	Be	2	45	175.00	ppb	0.53	200.00	90 -	110	87.5	Fail
11	B	2	45	150.60	ppb	0.35	200.00	90 -	110	75.3	Fail
23	Na	1	45	5452.00	ppb	3.11	5000.00	90 -	110	109.0	
24	Mg	1	45	5136.00	ppb	3.97	5000.00	90 -	110	102.7	
27	Al	1	45	5166.00	ppb	4.28	5000.00	90 -	110	103.3	
39	K	1	45	5421.00	ppb	2.08	5000.00	90 -	110	108.4	
44	Ca	2	45	5668.00	ppb	1.11	5000.00	90 -	110	113.4	Fail
47	Ti	1	45	199.90	ppb	5.44	200.00	90 -	110	100.0	
51	V	1	45	206.00	ppb	3.79	200.00	90 -	110	103.0	
52	Cr	1	45	204.90	ppb	3.91	200.00	90 -	110	102.5	
55	Mn	1	45	208.20	ppb	4.27	200.00	90 -	110	104.1	
56	Fe	1	72	5130.00	ppb	3.87	5000.00	90 -	110	102.6	
59	Co	1	72	200.20	ppb	3.47	200.00	90 -	110	100.1	
60	Ni	1	72	195.20	ppb	2.77	200.00	90 -	110	97.6	
63	Cu	1	72	199.40	ppb	2.95	200.00	90 -	110	99.7	
66	Zn	1	72	210.60	ppb	4.45	200.00	90 -	110	105.3	
75	As	1	72	211.60	ppb	2.91	200.00	90 -	110	105.8	
78	Se	1	72	205.60	ppb	3.09	200.00	90 -	110	102.8	
88	Sr	2	115	245.00	ppb	0.78	200.00	90 -	110	122.5	Fail
95	Mo	2	115	226.10	ppb	0.52	200.00	90 -	110	113.1	Fail
107	Ag	2	115	204.60	ppb	0.59	200.00	90 -	110	102.3	
111	Cd	2	115	202.50	ppb	0.36	200.00	90 -	110	101.3	
118	Sn	2	115	201.50	ppb	0.74	200.00	90 -	110	100.8	
121	Sb	2	115	203.10	ppb	0.30	200.00	90 -	110	101.6	
137	Ba	2	115	200.90	ppb	0.82	200.00	90 -	110	100.5	
205	Tl	2	209	196.60	ppb	0.44	200.00	90 -	110	98.3	
208	Pb	2	209	197.40	ppb	0.64	200.00	90 -	110	98.7	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	-39824.36	2.91	36.77	-108307.8	70 -	120		ISFail
45	Sc	1	95158.43	0.62	157844.06	60.3	70 -	120		ISFail
45	Sc	2	3598345.00	0.95	5827273.50	61.8	70 -	120		ISFail
72	Ge	1	52385.56	0.64	86621.49	60.5	70 -	120		ISFail
115	In	2	3080674.30	0.32	6276207.00	49.1	70 -	120		ISFail
209	Bi	2	2287627.30	0.52	4446753.50	51.4	70 -	120		ISFail

CCV QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\167LCVL.D\167LCVL.D#

Date Acquired:	Aug 11 2016 03:52 am	Sample Name:	**LCVL7-160810**
Acq. Method:	DHL_3Fe.M	Misc Info:	LCVLICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 10 2016 01:05 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	9.42	ppb	0.85	10.00	70 -	130	94.2	
9	Be	2	45	0.89	ppb	3.28	1.00	70 -	130	88.7	
11	B	2	45	16.57	ppb	1.76	20.00	70 -	130	82.9	
23	Na	1	45	90.96	ppb	1.51	100.00	70 -	130	91.0	
24	Mg	1	45	106.80	ppb	4.63	100.00	70 -	130	106.8	
27	Al	1	45	115.10	ppb	6.15	100.00	70 -	130	115.1	
39	K	1	45	121.30	ppb	2.12	100.00	70 -	130	121.3	
44	Ca	2	45	115.60	ppb	3.18	100.00	70 -	130	115.6	
47	Ti	1	45	4.26	ppb	11.53	5.00	70 -	130	85.2	
51	V	1	45	1.00	ppb	1.63	1.00	70 -	130	100.0	
52	Cr	1	45	5.25	ppb	6.12	5.00	70 -	130	105.1	
55	Mn	1	45	5.45	ppb	3.71	5.00	70 -	130	109.1	
56	Fe	1	72	117.20	ppb	6.40	100.00	70 -	130	117.2	
59	Co	1	72	4.97	ppb	2.46	5.00	70 -	130	99.4	
60	Ni	1	72	5.09	ppb	3.07	5.00	70 -	130	101.9	
63	Cu	1	72	4.97	ppb	1.95	5.00	70 -	130	99.4	
66	Zn	1	72	5.27	ppb	9.03	5.00	70 -	130	105.5	
75	As	1	72	5.17	ppb	1.96	5.00	70 -	130	103.4	
78	Se	1	72	5.71	ppb	1.80	5.00	70 -	130	114.2	
88	Sr	2	115	6.11	ppb	1.48	5.00	70 -	130	122.2	
95	Mo	2	115	5.79	ppb	3.13	5.00	70 -	130	115.9	
107	Ag	2	115	2.17	ppb	5.38	2.00	70 -	130	108.6	
111	Cd	2	115	0.99	ppb	6.72	1.00	70 -	130	99.2	
118	Sn	2	115	5.17	ppb	0.92	5.00	70 -	130	103.5	
121	Sb	2	115	2.09	ppb	1.94	2.00	70 -	130	104.6	
137	Ba	2	115	5.04	ppb	3.36	5.00	70 -	130	100.7	
205	Tl	2	209	1.06	ppb	3.25	1.00	70 -	130	106.1	
208	Pb	2	209	1.09	ppb	2.39	1.00	70 -	130	109.1	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	-1094.09	4.54	36.77	-2975.5	70 -	120		ISFail
45	Sc	1	99179.54	0.99	157844.06	62.8	70 -	120		ISFail
45	Sc	2	3406155.80	1.46	5827273.50	58.5	70 -	120		ISFail
72	Ge	1	55142.63	0.79	86621.49	63.7	70 -	120		ISFail
115	In	2	2814354.00	0.76	6276207.00	44.8	70 -	120		ISFail
209	Bi	2	2211154.00	0.67	4446753.50	49.7	70 -	120		ISFail

CCB QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\168_CCB.D\168_CCB.D#

Date Acquired:	Aug 11 2016 03:58 am	Sample Name:	**CCB7-160810**
Acq. Method:	DHL_3Fe.M	Misc Info:	CCB ICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 10 2016 01:05 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	MDL S	MDL Aq	Flag
7	Li	2	45	0.147	ppb	2.21	2.00	2.00	
9	Be	2	45	0.022	ppb	16.36	0.40	0.30	
11	B	2	45	1.560	ppb	3.46	10.00	10.00	
23	Na	1	45	-4.759	ppb	1.61	50.00	#####	
24	Mg	1	45	3.644	ppb	15.70	50.00	#####	
27	Al	1	45	12.450	ppb	15.84	50.00	10.00	FailAq
39	K	1	45	13.340	ppb	3.48	50.00	#####	
44	Ca	2	45	31.800	ppb	6.58	50.00	#####	
47	Ti	1	45	0.054	ppb	49.99	4.00	3.00	
51	V	1	45	-0.001	ppb	5.72	4.00	3.00	
52	Cr	1	45	0.054	ppb	10.14	2.00	2.00	
55	Mn	1	45	0.182	ppb	15.80	2.00	3.00	
56	Fe	1	72	6.676	ppb	15.79	50.00	30.00	
59	Co	1	72	0.052	ppb	14.06	2.00	3.00	
60	Ni	1	72	0.129	ppb	12.29	2.00	3.00	
63	Cu	1	72	0.068	ppb	11.49	2.00	2.00	
66	Zn	1	72	1.303	ppb	5.76	4.00	2.00	
75	As	1	72	-0.046	ppb	1.17	2.00	2.00	
78	Se	1	72	0.190	ppb	25.13	0.60	2.00	
88	Sr	2	115	0.199	ppb	7.55	4.00	3.00	
95	Mo	2	115	0.072	ppb	36.20	2.00	2.00	
107	Ag	2	115	0.058	ppb	6.93	0.40	1.00	
111	Cd	2	115	0.018	ppb	110.53	0.40	0.30	
118	Sn	2	115	0.085	ppb	26.56	20.00	3.00	
121	Sb	2	115	0.062	ppb	9.33	2.00	0.80	
137	Ba	2	115	0.114	ppb	6.00	2.00	3.00	
205	Tl	2	209	0.113	ppb	14.29	2.00	0.50	
208	Pb	2	209	0.072	ppb	6.03	0.40	0.30	

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	RHigh	-16.38	103.31	36.77	-44.5	70 - 120	ISFail
45	Sc	1		95675.22	1.47	157844.06	60.6	70 - 120	ISFail
45	Sc	2		3322419.80	1.76	5827273.50	57.0	70 - 120	ISFail
72	Ge	1		53121.97	0.89	86621.49	61.3	70 - 120	ISFail
115	In	2		2816927.80	0.80	6276207.00	44.9	70 - 120	ISFail
209	Bi	2		2198136.80	0.60	4446753.50	49.4	70 - 120	ISFail

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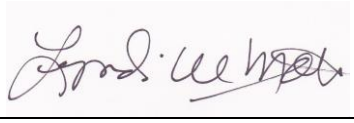

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Phone (512) 388-8222 ■ FAX (512) 388-8229
Web: www.dhlanalytical.com
E-Mail: login@dhlanalytical.com

Nº 72226 CHAIN-OF-CUSTODY

CLIENT: ARCADIS
ADDRESS: 8225 Rosehill Suite 350 Lenexa, KS 66215
PHONE: 913-492-0900 FAX/E-MAIL: Alex.Walter@arcadis.com
DATA REPORTED TO: Alex Walter
ADDITIONAL REPORT COPIES TO:

DATE: 7-27-16 PAGE 1 OF 3
PO #: 04285081.0000.00044 DHL WORK ORDER #: 1607317
PROJECT LOCATION OR NAME: Laredo SGR
CLENT PROJECT #: 04285081.0000.00044 COLLECTOR: Jordan Boem

Authorize 5% surcharge for TRRP Report? ☐ Yes ☐ No

S=SOIL W=WATER A=AIR L=LIQUID SE=SEDIMENT P=PAINT SL=SLUDGE O=OTHER SO=SOLID

Field Sample I.D.	DHL Lab #	Date	Time	Matrix	Container Type	# of Containers	PRESERVATION: HCl	HNO_3	H_2SO_4 ☐ NaOH ☐	ICE	UNPRESERVED	ANALYSES	FIELD NOTES
SGR-DU156(0-2)-A	01	7-27-16	1015	S	Bag	1				X		X	
SGR-DU156(2-4)-A	02	7-27-16	1017	S	Bag	1				X		X	
SGR-DU156(4-6)-A	03	7-27-16	1019	S	Bag	1				X		X	
SGR-DU156(6-8)-A	04	7-27-16	1021	S	Bag	1				X		X	
SGR-DU156(0-2)-B	05	7-27-16	1024	S	Bag	1				X		X	
SGR-DU156(2-4)-B	06	7-27-16	1026	S	Bag	1				X		X	
SGR-DU156(4-6)-B	07	7-27-16	1028	S	Bag	1				X		X	
SGR-DU156(6-8)-B	08	7-27-16	1030	S	Bag	1				X		X	
SGR-DU156(0-2)-C	09	7-27-16	1033	S	Bag	1				X		X	
SGR-DU156(2-4)-C	10	7-27-16	1035	S	Bag	1				X		X	
SGR-DU156(4-6)-C	11	7-27-16	1037	S	Bag	1				X		X	
SGR-DU156(6-8)-C	12	7-27-16	1039	S	Bag	1				X		X	
EB01(20160727)	13	7-27-16	1045	W	Poly/Glass	2		X		X		X	

ANALYSES: BTEX ☐ MTBE ☐ [METHOD 8021] TPH 1005 ☐ TPH 1006 ☐ HOLD 1006 ☐ GRO [METHOD 8015] ☐ DRO [METHOD 8105] ☐ VOC 8260 ☐ VOC 624 ☐ VOC 8260/5035 ☐ SVOC 8270 ☐ PAH 8270 ☐ HOLD PAH ☐ SVOC 625 ☐ 8270 PEST ☐ 625 PEST/PCB ☐ 608 PCB ☐ 8270 O-P PEST ☐ 8082 PCB ☐ 8270 PCB ☐ 8321 HERB ☐ T PHOS, AMMONIA ☐ METALS 6020 ☐ METALS 200.8 ☐ DISS. METALS ☐ RCRA ☐ TX11 ☐ Lead PH ☐ HEX CHROM ☐ ALKALINITY ☐ COD ☐ CHLORIDE ☐ ANIONS ☐ TCLP-SVOC ☐ VOC ☐ PEST ☐ HERB ☐ TCLP-METALS ☐ RCRA 8 ☐ TX-11 ☐ Pb ☐ RCI ☐ FLASHPOINT ☐ DGAS ☐ TDS ☐ TSS ☐ % MOISTURE ☐ CYANIDE ☐

RELINQUISHED BY: (Signature) Jordan Boem DATE/TIME 7-27-16 / 1630 RECEIVED BY: (Signature) Fedex
RELINQUISHED BY: (Signature) Fedex DATE/TIME 7/28/16 RECEIVED BY: (Signature)
RELINQUISHED BY: (Signature) DATE/TIME RECEIVED BY: (Signature)

☐ DHL DISPOSAL @ $5.00 each ☐ Return

TURN AROUND TIME
RUSH ☐ CALL FIRST
1 DAY ☐ CALL FIRST
2 DAY ☐
NORMAL ☐
OTHER ☐ _____

LABORATORY USE ONLY:
RECEIVING TEMP: _____ THERM #: 798
CUSTODY SEALS: ☐ BROKEN ☒ INTACT ☐ NOT USED
CARRIER: ☐ LONE STAR ☒ FEDEX ☐ UPS ☐ OTHER
☐ COURIER DELIVERY 1.3 | 0.5 | 0.4 | 2.8
☐ HAND DELIVERED 0.3 | 0.4

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Web: www.dhlanalytical.com
E-Mail: login@dhlanalytical.com

№ 72227

CHAIN-OF-CUSTODY

CLIENT: ARCADIS
ADDRESS: 8725 Rosehill Suite 350 Lenexa, KS 66215
PHONE: 913-492-0900 FAX/E-MAIL: Alex.Walter@arcadis.com
DATA REPORTED TO: Alex Walter
ADDITIONAL REPORT COPIES TO:

DATE: 7-27-16 PAGE 2 OF 2
PO #: 04285081.0000.00044 DHL WORK ORDER #: 1L0707317
PROJECT LOCATION OR NAME: Laredo SGR
CLENT PROJECT #: 04285081.0000.00044 COLLECTOR: Jordan Beem

Authorize 5% surcharge for TRRP Report? ❑ Yes ❑ No

S=SOIL P=PAINT
W=WATER SL=SLUDGE
A=AIR O=OTHER
L=LIQUID SO=SOLID
SE=SEDIMENT

Field Sample I.D.	DHL Lab #	Date	Time	Matrix	Container Type	# of Containers	PRESERVATION: HCl	HNO_3	H_2SO_4 ❑ NaOH ❑	ICE	UNPRESERVED	ANALYSES: BTEX ❑ MTBE ❑ [METHOD 8021]	TPH 1005 ❑ TPH 1006 ❑ HOLD 1006 ❑	GRO [METHOD 8015] ❑ DRO [METHOD 8105] ❑	VOC 8260 ❑ VOC 624 ❑ VOC 8260/5035 ❑	SVOC 8270 ❑ PAH 8270 ❑ HOLD PAH ❑ SVOC 625 ❑	8270 PEST ❑ 625 PEST/PCB ❑ 608 PCB ❑	8270 O-P PEST ❑ 8082 PCB ❑ 8270 PCB ❑	8321 HERB ❑ T PHOS, AMMONIA ❑	METALS 6020 ❑ METALS 200.8 ❑ DISS. METALS ❑	RCRA ❑ TX11 ❑ Lead	PH ❑ HEX CHROM ❑ ALKALINITY ❑ COD ❑	CHLORIDE ❑ ANIONS ❑	TCLP-SVOC ❑ VOC ❑ PEST ❑ HERB ❑	TCLP-METALS ❑ RCRA 8 ❑ TX-11 ❑ Pb ❑	RCI ❑ FLASHPOINT ❑ DGAS ❑	TDS ❑ TSS ❑ % MOISTURE ❑ CYANIDE ❑	FIELD NOTES
SGR-DU080(0-2)-A	14	7-27-16	1244	S	Bag	1				X					X						X								
SGR-DU080(2-4)-A	15	7-27-16	1246	S	Bag	1				X					X						X								
SGR-DU080(4-6)-A	16	7-27-16	1248	S	Bag	1				X					X						X								
SGR-DU080(6-8)-A	17	7-27-16	1250	S	Bag	1				X					X						X								
SGR-DU080(0-2)-B	18	7-27-16	1252	S	Bag	1				X					X						X								
SGR-DU080(2-4)-B	19	7-27-16	1254	S	Bag	1				X					X						X								
SGR-DU080(4-6)-B	20	7-27-16	1256	S	Bag	1				X					X						X								
SGR-DU080(6-8)-B	21	7-27-16	1258	S	Bag	1				X					X						X								
SGR-DU080(0-2)-C	22	7-27-16	1300	S	Bag	1				X					X						X								
SGR-DU080(2-4)-C	23	7-27-16	1302	S	Bag	1				X					X						X								
SGR-DU080(4-6)-C	24	7-27-16	1304	S	Bag	1				X					X						X								
SGR-DU080(6-8)-C	25	7-27-16	1306	S	Bag	1				X					X						X								
EB02(20160727)	26	7-27-16	1310	W	Poly/Glass	2		X		X					X						X								

RELINQUISHED BY: (Signature) Jordan Beem DATE/TIME 7-27-16/1630 RECEIVED BY: (Signature) FedEx
RELINQUISHED BY: (Signature) FedEx DATE/TIME 7/28/16 10:00 RECEIVED BY: (Signature)
RELINQUISHED BY: (Signature) DATE/TIME RECEIVED BY: (Signature)

❑ DHL DISPOSAL @ $5.00 each ❑ Return

TURN AROUND TIME
RUSH ❑ CALL FIRST
1 DAY ❑ CALL FIRST
2 DAY ❑
NORMAL ❑
OTHER ❑ _____

LABORATORY USE ONLY:
RECEIVING TEMP: 1.3 THERM #: 78
CUSTODY SEALS: ❑ BROKEN ☒ INTACT ❑ NOT USED
CARRIER: ❑ LONE STAR ☒ FEDEX ❑ UPS ❑ OTHER
❑ COURIER DELIVERY 0.5 | 0.6 | 2.8 | 0.3 | 0.6
❑ HAND DELIVERED

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E-Mail: login@dhlanalytical.com

№ 72225

CHAIN-OF-CUSTODY

CLIENT: ARCADIS
ADDRESS: 8725 Rosehill Suite 350 Lenexa, KS 66215
PHONE: 913-492-0900 FAX/E-MAIL: Alex.Walter@arcadis.com
DATA REPORTED TO: Alex Walter
ADDITIONAL REPORT COPIES TO:

DATE: 7-27-16 PAGE 3 OF 3
PO #: 04285081.0000.00044 DHL WORK ORDER #: 1160731?
PROJECT LOCATION OR NAME: Laredo SGR
CLENT PROJECT #: 04285081.0000.00044 COLLECTOR: Jordon Beem

Authorize 5% surcharge for TRRP Report? ☐ Yes ☐ No

S=SOIL W=WATER A=AIR L=LIQUID SE=SEDIMENT P=PAINT SL=SLUDGE O=OTHER SO=SOLID

PRESERVATION: HCl | HNO_3 | H_2SO_4 ☐ NaOH ☐ | ICE | UNPRESERVED

ANALYSES: BTEX ☐ MTBE ☐ [METHOD 8021] | TPH 1005 ☐ TPH 1006 ☐ HOLD 1006 ☐ | GRO [METHOD 8015] ☐ DRO [METHOD 8105] ☐ | VOC 8260 ☐ VOC 624 ☐ VOC 8260/5035 ☐ | SVOC 8270 ☐ PAH 8270 ☐ HOLD PAH ☐ SVOC 625 ☐ | 8270 PEST ☐ 625 PEST/PCB ☐ 8082 PCB ☐ 608 PCB ☐ | 8270 O-P PEST ☐ 8082 PCB ☐ 8270 PCB ☐ | 8321 HERB ☐ T PHOS, AMMONIA ☐ | METALS 6020 ☐ METALS 200.8 ☐ DISS. METALS ☐ # | RCRA ☐ TX11 ☐ Lead | PH ☐ HEX CHROM ☐ ALKALINITY ☐ COD ☐ | CHLORIDE ☐ ANIONS ☐ | TCLP-SVOC ☐ VOC ☐ PEST ☐ HERB ☐ | TCLP-METALS ☐ RCRA 8 ☐ TX-11 ☐ Pb ☐ | RCI ☐ FLASHPOINT ☐ DGAS ☐ | TDS ☐ TSS ☐ % MOISTURE ☐ CYANIDE ☐

Field Sample I.D.	DHL Lab #	Date	Time	Matrix	Container Type	# of Containers	HCl	HNO_3	H_2SO_4 ☐ NaOH ☐	ICE	UNPRESERVED	ANALYSES	FIELD NOTES
SGR-DU176(0-2)-A	27	7-27-16	1500	S	Bag	1				X		X X X	
SGR-DU176(2-4)-A	28	7-27-16	1502	S	Bag	1				X		X X X	
SGR-DU176(4-6)-A	29	7-27-16	1504	S	Bag	1				X		X X X	
SGR-DU176(6-8)-A	30	7-27-16	1506	S	Bag	1				X		X X X	
SGR-DU176(0-2)-B	31	7-27-16	1515	S	Bag	1				X		X X X	
SGR-DU176(2-4)-B	32	7-27-16	1517	S	Bag	1				X		X X X	
SGR-DU176(4-6)-B	33	7-27-16	1519	S	Bag	1				X		X X X	
SGR-DU176(6-8)-B	34	7-27-16	1521	S	Bag	1				X		X X X	
SGR-DU176(0-2)-C	25	7-27-16	1522	S	Bag	1				X		X X X	
SGR-DU176(2-4)-C	36	7-27-16	1524	S	Bag	1				X		X X X	
SGR-DU176(4-6)-C	37	7-27-16	1526	S	Bag	1				X		X X X	
SGR-DU176(6-8)-C	38	7-27-16	1528	S	Bag	1				X		X X X	
EB03(20160727)	39	7-27-16	1535	W	Poly/Glass	2		X		X		X X X	

RELINQUISHED BY: (Signature) Jordon Beem DATE/TIME 7-27-16 / 1650 RECEIVED BY: (Signature) Fedex
RELINQUISHED BY: (Signature) Fedex DATE/TIME 7/28/16 10:00 RECEIVED BY: (Signature)
RELINQUISHED BY: (Signature) DATE/TIME RECEIVED BY: (Signature)

☐ DHL DISPOSAL @ $5.00 each ☐ Return

TURN AROUND TIME
RUSH ☐ CALL FIRST
1 DAY ☐ CALL FIRST
2 DAY ☐
NORMAL ☐
OTHER ☐ _____

LABORATORY USE ONLY:
RECEIVING TEMP: 1.2 THERM #: 78
CUSTODY SEALS: ☐ BROKEN ☒ INTACT ☐ NOT USED
CARRIER: ☐ LONE STAR ☒ FEDEX ☐ UPS ☐ OTHER
☐ COURIER DELIVERY 0.5|0.6|2.8|0.2|0.6
☐ HAND DELIVERED

DHL Analytical, Inc.

Sample Receipt Checklist

Client Name **Arcadis** Date Received: **7/28/2016**

Work Order Number **1607317** Received by **JT**

Checklist completed by: _____ 7/28/2016 Reviewed by DL 7/28/2016
Signature Date Initials Date

Carrier name FedEx 1day

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shippping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	2.8 °C |1.3|0.5|0.6|0.3|0.6
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH<2 acceptable upon receipt?	Yes ☑	No ☐	NA ☐ LOT # 8086
	Adjusted? NO		Checked by JT
Water - ph>9 (S) or ph>12 (CN) acceptable upon receipt?	Yes ☐	No ☐	NA ☑ LOT #
	Adjusted? _____		Checked by _____

Any No response must be detailed in the comments section below.

Client contacted _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding: _____

Comments: _____

Corrective Action _____

Page 1 of 1

DHL Analytical, Inc.

Date: *19-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU156(0-2)-A
Project:	Laredo SGR	**Lab ID:**	1607317-01
Project No:	04285081.0000.00044	**Collection Date:**	07/27/16 10:15 AM
Lab Order:	1607317	**Matrix:**	SOIL

Analyses	Result		DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID				**SW6020A**					Analyst: **CVD**
Lead	40.8	JH	0.0909	0.273	0.136		mg/Kg-dry	5	08/10/16 06:54 PM
IS: Bismuth	82.3		0	30-120	0		%REC	5	08/10/16 06:54 PM
PAHS: GC/MS				**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0739		0.0493	0.0985	0.0739	U	mg/Kg-dry	10	08/09/16 02:23 AM
Acenaphthylene	0.0739		0.0493	0.0985	0.0739	U	mg/Kg-dry	10	08/09/16 02:23 AM
Anthracene	0.0739		0.0493	0.0985	0.0739	U	mg/Kg-dry	10	08/09/16 02:23 AM
Benzo[a]anthracene	0.0962		0.0493	0.0985	0.0739	J	mg/Kg-dry	10	08/09/16 02:23 AM
Benzo[a]pyrene	0.141		0.0493	0.0985	0.0739		mg/Kg-dry	10	08/09/16 02:23 AM
Benzo[b]fluoranthene	0.138		0.0493	0.0985	0.0739		mg/Kg-dry	10	08/09/16 02:23 AM
Benzo[e]pyrene	0.111		0.0493	0.0985	0.0739		mg/Kg-dry	10	08/09/16 02:23 AM
Benzo[g,h,i]perylene	0.133		0.0493	0.0985	0.0739		mg/Kg-dry	10	08/09/16 02:23 AM
Benzo[j]fluoranthene	0.0709		0.0493	0.0985	0.0739	JN	mg/Kg-dry	10	08/09/16 02:23 AM
Benzo[k]fluoranthene	0.0714		0.0493	0.0985	0.0739	J	mg/Kg-dry	10	08/09/16 02:23 AM
Chrysene	0.129		0.0493	0.0985	0.0739		mg/Kg-dry	10	08/09/16 02:23 AM
Dibenz[a,h]anthracene	0.0739		0.0493	0.0985	0.0739	U	mg/Kg-dry	10	08/09/16 02:23 AM
Fluoranthene	0.142		0.0493	0.0985	0.0739		mg/Kg-dry	10	08/09/16 02:23 AM
Fluorene	0.0739		0.0493	0.0985	0.0739	U	mg/Kg-dry	10	08/09/16 02:23 AM
Indeno[1,2,3-cd]pyrene	0.107		0.0493	0.0985	0.0739		mg/Kg-dry	10	08/09/16 02:23 AM
Phenanthrene	0.0739		0.0493	0.0985	0.0739	U	mg/Kg-dry	10	08/09/16 02:23 AM
Pyrene	0.138		0.0493	0.0985	0.0739		mg/Kg-dry	10	08/09/16 02:23 AM
IS: Acenaphthene-d10	133		0	50-200	0		%REC	10	08/09/16 02:23 AM
IS: Chrysene-d12	109		0	50-200	0		%REC	10	08/09/16 02:23 AM
IS: Naphthalene-d8	104		0	50-200	0		%REC	10	08/09/16 02:23 AM
IS: Perylene-d12	111		0	50-200	0		%REC	10	08/09/16 02:23 AM
IS: Phenanthrene-d10	95.6		0	50-200	0		%REC	10	08/09/16 02:23 AM
Surr: 2-Fluorobiphenyl	74.4		0	46-115	0		%REC	10	08/09/16 02:23 AM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU156(0-2)-A
Project:	Laredo SGR	**Lab ID:**	1607317-01
Project No:	04285081.0000.00044	**Collection Date:**	07/27/16 10:15 AM
Lab Order:	1607317	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	81.2	0	58-133	0		%REC	10	08/09/16 02:23 AM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU156(2-4)-A
Project:	Laredo SGR	**Lab ID:**	1607317-02
Project No:	04285081.0000.00044	**Collection Date:**	07/27/16 10:17 AM
Lab Order:	1607317	**Matrix:**	SOIL

Analyses	Result		DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID				**SW6020A**					Analyst: **CVD**
Lead	9.73	JH	0.0943	0.283	0.142		mg/Kg-dry	5	08/10/16 06:59 PM
IS: Bismuth	80.6		0	30-120	0		%REC	5	08/10/16 06:59 PM
PAHS: GC/MS				**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0737		0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/09/16 03:03 AM
Acenaphthylene	0.0737		0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/09/16 03:03 AM
Anthracene	0.0737		0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/09/16 03:03 AM
Benzo[a]anthracene	0.0737		0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/09/16 03:03 AM
Benzo[a]pyrene	0.0737		0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/09/16 03:03 AM
Benzo[b]fluoranthene	0.0737		0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/09/16 03:03 AM
Benzo[e]pyrene	0.0737		0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/09/16 03:03 AM
Benzo[g,h,i]perylene	0.0737		0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/09/16 03:03 AM
Benzo[j]fluoranthene	0.0737		0.0492	0.0983	0.0737	NU	mg/Kg-dry	10	08/09/16 03:03 AM
Benzo[k]fluoranthene	0.0737		0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/09/16 03:03 AM
Chrysene	0.0737		0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/09/16 03:03 AM
Dibenz[a,h]anthracene	0.0737		0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/09/16 03:03 AM
Fluoranthene	0.0737		0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/09/16 03:03 AM
Fluorene	0.0737		0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/09/16 03:03 AM
Indeno[1,2,3-cd]pyrene	0.0737		0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/09/16 03:03 AM
Phenanthrene	0.0737		0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/09/16 03:03 AM
Pyrene	0.0737		0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/09/16 03:03 AM
IS: Acenaphthene-d10	137		0	50-200	0		%REC	10	08/09/16 03:03 AM
IS: Chrysene-d12	116		0	50-200	0		%REC	10	08/09/16 03:03 AM
IS: Naphthalene-d8	107		0	50-200	0		%REC	10	08/09/16 03:03 AM
IS: Perylene-d12	118		0	50-200	0		%REC	10	08/09/16 03:03 AM
IS: Phenanthrene-d10	98.5		0	50-200	0		%REC	10	08/09/16 03:03 AM
Surr: 2-Fluorobiphenyl	74.3		0	46-115	0		%REC	10	08/09/16 03:03 AM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU156(2-4)-A
Project:	Laredo SGR	**Lab ID:**	1607317-02
Project No:	04285081.0000.00044	**Collection Date:**	07/27/16 10:17 AM
Lab Order:	1607317	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	79.5	0	58-133	0		%REC	10	08/09/16 03:03 AM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *19-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU156(4-6)-A
Project:	Laredo SGR	**Lab ID:**	1607317-03
Project No:	04285081.0000.00044	**Collection Date:**	07/27/16 10:19 AM
Lab Order:	1607317	**Matrix:**	SOIL

Analyses	Result		DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID				**SW6020A**					Analyst: **CVD**
Lead	11.2	JH	0.0935	0.280	0.140		mg/Kg-dry	5	08/10/16 07:11 PM
IS: Bismuth	81.4		0	30-120	0		%REC	5	08/10/16 07:11 PM
PAHS: GC/MS				**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0730		0.0486	0.0973	0.0730	U	mg/Kg-dry	10	08/09/16 03:43 AM
Acenaphthylene	0.0730		0.0486	0.0973	0.0730	U	mg/Kg-dry	10	08/09/16 03:43 AM
Anthracene	0.0730		0.0486	0.0973	0.0730	U	mg/Kg-dry	10	08/09/16 03:43 AM
Benzo[a]anthracene	0.0730		0.0486	0.0973	0.0730	U	mg/Kg-dry	10	08/09/16 03:43 AM
Benzo[a]pyrene	0.0730		0.0486	0.0973	0.0730	U	mg/Kg-dry	10	08/09/16 03:43 AM
Benzo[b]fluoranthene	0.0730		0.0486	0.0973	0.0730	U	mg/Kg-dry	10	08/09/16 03:43 AM
Benzo[e]pyrene	0.0730		0.0486	0.0973	0.0730	U	mg/Kg-dry	10	08/09/16 03:43 AM
Benzo[g,h,i]perylene	0.0730		0.0486	0.0973	0.0730	U	mg/Kg-dry	10	08/09/16 03:43 AM
Benzo[j]fluoranthene	0.0730		0.0486	0.0973	0.0730	NU	mg/Kg-dry	10	08/09/16 03:43 AM
Benzo[k]fluoranthene	0.0730		0.0486	0.0973	0.0730	U	mg/Kg-dry	10	08/09/16 03:43 AM
Chrysene	0.0730		0.0486	0.0973	0.0730	U	mg/Kg-dry	10	08/09/16 03:43 AM
Dibenz[a,h]anthracene	0.0730		0.0486	0.0973	0.0730	U	mg/Kg-dry	10	08/09/16 03:43 AM
Fluoranthene	0.0730		0.0486	0.0973	0.0730	U	mg/Kg-dry	10	08/09/16 03:43 AM
Fluorene	0.0730		0.0486	0.0973	0.0730	U	mg/Kg-dry	10	08/09/16 03:43 AM
Indeno[1,2,3-cd]pyrene	0.0730		0.0486	0.0973	0.0730	U	mg/Kg-dry	10	08/09/16 03:43 AM
Phenanthrene	0.0730		0.0486	0.0973	0.0730	U	mg/Kg-dry	10	08/09/16 03:43 AM
Pyrene	0.0730		0.0486	0.0973	0.0730	U	mg/Kg-dry	10	08/09/16 03:43 AM
IS: Acenaphthene-d10	140		0	50-200	0		%REC	10	08/09/16 03:43 AM
IS: Chrysene-d12	118		0	50-200	0		%REC	10	08/09/16 03:43 AM
IS: Naphthalene-d8	108		0	50-200	0		%REC	10	08/09/16 03:43 AM
IS: Perylene-d12	121		0	50-200	0		%REC	10	08/09/16 03:43 AM
IS: Phenanthrene-d10	102		0	50-200	0		%REC	10	08/09/16 03:43 AM
Surr: 2-Fluorobiphenyl	76.3		0	46-115	0		%REC	10	08/09/16 03:43 AM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU156(4-6)-A
Project:	Laredo SGR	**Lab ID:**	1607317-03
Project No:	04285081.0000.00044	**Collection Date:**	07/27/16 10:19 AM
Lab Order:	1607317	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	85.7	0	58-133	0		%REC	10	08/09/16 03:43 AM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *19-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU156(6-8)-A
Project:	Laredo SGR	**Lab ID:**	1607317-04
Project No:	04285081.0000.00044	**Collection Date:**	07/27/16 10:21 AM
Lab Order:	1607317	**Matrix:**	SOIL

Analyses	Result		DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID				**SW6020A**					Analyst: **CVD**
Lead	5.11	JH	0.0971	0.291	0.146		mg/Kg-dry	5	08/10/16 07:17 PM
IS: Bismuth	75.8		0	30-120	0		%REC	5	08/10/16 07:17 PM
PAHS: GC/MS				**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0714		0.0476	0.0951	0.0714	U	mg/Kg-dry	10	08/09/16 04:24 AM
Acenaphthylene	0.0714		0.0476	0.0951	0.0714	U	mg/Kg-dry	10	08/09/16 04:24 AM
Anthracene	0.0714		0.0476	0.0951	0.0714	U	mg/Kg-dry	10	08/09/16 04:24 AM
Benzo[a]anthracene	0.0714		0.0476	0.0951	0.0714	U	mg/Kg-dry	10	08/09/16 04:24 AM
Benzo[a]pyrene	0.0714		0.0476	0.0951	0.0714	U	mg/Kg-dry	10	08/09/16 04:24 AM
Benzo[b]fluoranthene	0.0714		0.0476	0.0951	0.0714	U	mg/Kg-dry	10	08/09/16 04:24 AM
Benzo[e]pyrene	0.0714		0.0476	0.0951	0.0714	U	mg/Kg-dry	10	08/09/16 04:24 AM
Benzo[g,h,i]perylene	0.0714		0.0476	0.0951	0.0714	U	mg/Kg-dry	10	08/09/16 04:24 AM
Benzo[j]fluoranthene	0.0714		0.0476	0.0951	0.0714	NU	mg/Kg-dry	10	08/09/16 04:24 AM
Benzo[k]fluoranthene	0.0714		0.0476	0.0951	0.0714	U	mg/Kg-dry	10	08/09/16 04:24 AM
Chrysene	0.0714		0.0476	0.0951	0.0714	U	mg/Kg-dry	10	08/09/16 04:24 AM
Dibenz[a,h]anthracene	0.0714		0.0476	0.0951	0.0714	U	mg/Kg-dry	10	08/09/16 04:24 AM
Fluoranthene	0.0714		0.0476	0.0951	0.0714	U	mg/Kg-dry	10	08/09/16 04:24 AM
Fluorene	0.0714		0.0476	0.0951	0.0714	U	mg/Kg-dry	10	08/09/16 04:24 AM
Indeno[1,2,3-cd]pyrene	0.0714		0.0476	0.0951	0.0714	U	mg/Kg-dry	10	08/09/16 04:24 AM
Phenanthrene	0.0714		0.0476	0.0951	0.0714	U	mg/Kg-dry	10	08/09/16 04:24 AM
Pyrene	0.0714		0.0476	0.0951	0.0714	U	mg/Kg-dry	10	08/09/16 04:24 AM
IS: Acenaphthene-d10	140		0	50-200	0		%REC	10	08/09/16 04:24 AM
IS: Chrysene-d12	117		0	50-200	0		%REC	10	08/09/16 04:24 AM
IS: Naphthalene-d8	110		0	50-200	0		%REC	10	08/09/16 04:24 AM
IS: Perylene-d12	119		0	50-200	0		%REC	10	08/09/16 04:24 AM
IS: Phenanthrene-d10	102		0	50-200	0		%REC	10	08/09/16 04:24 AM
Surr: 2-Fluorobiphenyl	71.4		0	46-115	0		%REC	10	08/09/16 04:24 AM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU156(6-8)-A
Project:	Laredo SGR	**Lab ID:**	1607317-04
Project No:	04285081.0000.00044	**Collection Date:**	07/27/16 10:21 AM
Lab Order:	1607317	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	79.3	0	58-133	0		%REC	10	08/09/16 04:24 AM

Qualifiers:	*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
	C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
	E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
	MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
	RL	Reporting Limit	S	Spike Recovery outside control limits
	N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *19-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU156(0-2)-B
Project:	Laredo SGR	**Lab ID:**	1607317-05
Project No:	04285081.0000.00044	**Collection Date:**	07/27/16 10:24 AM
Lab Order:	1607317	**Matrix:**	SOIL

Analyses	Result		DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID				**SW6020A**					Analyst: **CVD**
Lead	27.6	JH	0.0952	0.286	0.143		mg/Kg-dry	5	08/10/16 07:23 PM
IS: Bismuth	77.3		0	30-120	0		%REC	5	08/10/16 07:23 PM
PAHS: GC/MS				**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0708		0.0472	0.0944	0.0708	U	mg/Kg-dry	10	08/09/16 10:57 AM
Acenaphthylene	0.0708		0.0472	0.0944	0.0708	U	mg/Kg-dry	10	08/09/16 10:57 AM
Anthracene	0.0708		0.0472	0.0944	0.0708	U	mg/Kg-dry	10	08/09/16 10:57 AM
Benzo[a]anthracene	0.0512		0.0472	0.0944	0.0708	J	mg/Kg-dry	10	08/09/16 10:57 AM
Benzo[a]pyrene	0.0693		0.0472	0.0944	0.0708	J	mg/Kg-dry	10	08/09/16 10:57 AM
Benzo[b]fluoranthene	0.0692		0.0472	0.0944	0.0708	J	mg/Kg-dry	10	08/09/16 10:57 AM
Benzo[e]pyrene	0.0567		0.0472	0.0944	0.0708	J	mg/Kg-dry	10	08/09/16 10:57 AM
Benzo[g,h,i]perylene	0.0619		0.0472	0.0944	0.0708	J	mg/Kg-dry	10	08/09/16 10:57 AM
Benzo[j]fluoranthene	0.0708		0.0472	0.0944	0.0708	NU	mg/Kg-dry	10	08/09/16 10:57 AM
Benzo[k]fluoranthene	0.0708		0.0472	0.0944	0.0708	U	mg/Kg-dry	10	08/09/16 10:57 AM
Chrysene	0.0616		0.0472	0.0944	0.0708	J	mg/Kg-dry	10	08/09/16 10:57 AM
Dibenz[a,h]anthracene	0.0708		0.0472	0.0944	0.0708	U	mg/Kg-dry	10	08/09/16 10:57 AM
Fluoranthene	0.0822		0.0472	0.0944	0.0708	J	mg/Kg-dry	10	08/09/16 10:57 AM
Fluorene	0.0708		0.0472	0.0944	0.0708	U	mg/Kg-dry	10	08/09/16 10:57 AM
Indeno[1,2,3-cd]pyrene	0.0549		0.0472	0.0944	0.0708	J	mg/Kg-dry	10	08/09/16 10:57 AM
Phenanthrene	0.0708		0.0472	0.0944	0.0708	U	mg/Kg-dry	10	08/09/16 10:57 AM
Pyrene	0.0734		0.0472	0.0944	0.0708	J	mg/Kg-dry	10	08/09/16 10:57 AM
IS: Acenaphthene-d10	133		0	50-200	0		%REC	10	08/09/16 10:57 AM
IS: Chrysene-d12	113		0	50-200	0		%REC	10	08/09/16 10:57 AM
IS: Naphthalene-d8	105		0	50-200	0		%REC	10	08/09/16 10:57 AM
IS: Perylene-d12	117		0	50-200	0		%REC	10	08/09/16 10:57 AM
IS: Phenanthrene-d10	94.6		0	50-200	0		%REC	10	08/09/16 10:57 AM
Surr: 2-Fluorobiphenyl	79.9		0	46-115	0		%REC	10	08/09/16 10:57 AM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU156(0-2)-B
Project:	Laredo SGR	**Lab ID:**	1607317-05
Project No:	04285081.0000.00044	**Collection Date:**	07/27/16 10:24 AM
Lab Order:	1607317	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	88.0	0	58-133	0		%REC	10	08/09/16 10:57 AM

Qualifiers:	*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
	C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
	E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
	MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
	RL	Reporting Limit	S	Spike Recovery outside control limits
	N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *19-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU156(2-4)-B
Project:	Laredo SGR	**Lab ID:**	1607317-06
Project No:	04285081.0000.00044	**Collection Date:**	07/27/16 10:26 AM
Lab Order:	1607317	**Matrix:**	SOIL

Analyses	Result		DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID				**SW6020A**					Analyst: **CVD**
Lead	9.06	JH	0.0885	0.265	0.133		mg/Kg-dry	5	08/10/16 07:29 PM
IS: Bismuth	77.8		0	30-120	0		%REC	5	08/10/16 07:29 PM
PAHS: GC/MS				**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0746		0.0498	0.0995	0.0746	U	mg/Kg-dry	10	08/09/16 11:37 AM
Acenaphthylene	0.0746		0.0498	0.0995	0.0746	U	mg/Kg-dry	10	08/09/16 11:37 AM
Anthracene	0.0746		0.0498	0.0995	0.0746	U	mg/Kg-dry	10	08/09/16 11:37 AM
Benzo[a]anthracene	0.0746		0.0498	0.0995	0.0746	U	mg/Kg-dry	10	08/09/16 11:37 AM
Benzo[a]pyrene	0.0746		0.0498	0.0995	0.0746	U	mg/Kg-dry	10	08/09/16 11:37 AM
Benzo[b]fluoranthene	0.0746		0.0498	0.0995	0.0746	U	mg/Kg-dry	10	08/09/16 11:37 AM
Benzo[e]pyrene	0.0746		0.0498	0.0995	0.0746	U	mg/Kg-dry	10	08/09/16 11:37 AM
Benzo[g,h,i]perylene	0.0746		0.0498	0.0995	0.0746	U	mg/Kg-dry	10	08/09/16 11:37 AM
Benzo[j]fluoranthene	0.0746		0.0498	0.0995	0.0746	NU	mg/Kg-dry	10	08/09/16 11:37 AM
Benzo[k]fluoranthene	0.0746		0.0498	0.0995	0.0746	U	mg/Kg-dry	10	08/09/16 11:37 AM
Chrysene	0.0746		0.0498	0.0995	0.0746	U	mg/Kg-dry	10	08/09/16 11:37 AM
Dibenz[a,h]anthracene	0.0746		0.0498	0.0995	0.0746	U	mg/Kg-dry	10	08/09/16 11:37 AM
Fluoranthene	0.0746		0.0498	0.0995	0.0746	U	mg/Kg-dry	10	08/09/16 11:37 AM
Fluorene	0.0746		0.0498	0.0995	0.0746	U	mg/Kg-dry	10	08/09/16 11:37 AM
Indeno[1,2,3-cd]pyrene	0.0746		0.0498	0.0995	0.0746	U	mg/Kg-dry	10	08/09/16 11:37 AM
Phenanthrene	0.0746		0.0498	0.0995	0.0746	U	mg/Kg-dry	10	08/09/16 11:37 AM
Pyrene	0.0746		0.0498	0.0995	0.0746	U	mg/Kg-dry	10	08/09/16 11:37 AM
IS: Acenaphthene-d10	139		0	50-200	0		%REC	10	08/09/16 11:37 AM
IS: Chrysene-d12	119		0	50-200	0		%REC	10	08/09/16 11:37 AM
IS: Naphthalene-d8	110		0	50-200	0		%REC	10	08/09/16 11:37 AM
IS: Perylene-d12	122		0	50-200	0		%REC	10	08/09/16 11:37 AM
IS: Phenanthrene-d10	101		0	50-200	0		%REC	10	08/09/16 11:37 AM
Surr: 2-Fluorobiphenyl	74.2		0	46-115	0		%REC	10	08/09/16 11:37 AM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU156(2-4)-B
Project:	Laredo SGR	**Lab ID:**	1607317-06
Project No:	04285081.0000.00044	**Collection Date:**	07/27/16 10:26 AM
Lab Order:	1607317	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	82.1	0	58-133	0		%REC	10	08/09/16 11:37 AM

Qualifiers:	*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
	C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
	E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
	MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
	RL	Reporting Limit	S	Spike Recovery outside control limits
	N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *19-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU156(4-6)-B
Project:	Laredo SGR	**Lab ID:**	1607317-07
Project No:	04285081.0000.00044	**Collection Date:**	07/27/16 10:28 AM
Lab Order:	1607317	**Matrix:**	SOIL

Analyses	Result		DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID				**SW6020A**					Analyst: **CVD**
Lead	7.06	JH	0.0926	0.278	0.139		mg/Kg-dry	5	08/10/16 07:35 PM
IS: Bismuth	80.2		0	30-120	0		%REC	5	08/10/16 07:35 PM
PAHS: GC/MS				**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0730		0.0487	0.0974	0.0730	U	mg/Kg-dry	10	08/09/16 12:18 PM
Acenaphthylene	0.0730		0.0487	0.0974	0.0730	U	mg/Kg-dry	10	08/09/16 12:18 PM
Anthracene	0.0730		0.0487	0.0974	0.0730	U	mg/Kg-dry	10	08/09/16 12:18 PM
Benzo[a]anthracene	0.0730		0.0487	0.0974	0.0730	U	mg/Kg-dry	10	08/09/16 12:18 PM
Benzo[a]pyrene	0.0730		0.0487	0.0974	0.0730	U	mg/Kg-dry	10	08/09/16 12:18 PM
Benzo[b]fluoranthene	0.0730		0.0487	0.0974	0.0730	U	mg/Kg-dry	10	08/09/16 12:18 PM
Benzo[e]pyrene	0.0730		0.0487	0.0974	0.0730	U	mg/Kg-dry	10	08/09/16 12:18 PM
Benzo[g,h,i]perylene	0.0730		0.0487	0.0974	0.0730	U	mg/Kg-dry	10	08/09/16 12:18 PM
Benzo[j]fluoranthene	0.0730		0.0487	0.0974	0.0730	NU	mg/Kg-dry	10	08/09/16 12:18 PM
Benzo[k]fluoranthene	0.0730		0.0487	0.0974	0.0730	U	mg/Kg-dry	10	08/09/16 12:18 PM
Chrysene	0.0730		0.0487	0.0974	0.0730	U	mg/Kg-dry	10	08/09/16 12:18 PM
Dibenz[a,h]anthracene	0.0730		0.0487	0.0974	0.0730	U	mg/Kg-dry	10	08/09/16 12:18 PM
Fluoranthene	0.0730		0.0487	0.0974	0.0730	U	mg/Kg-dry	10	08/09/16 12:18 PM
Fluorene	0.0730		0.0487	0.0974	0.0730	U	mg/Kg-dry	10	08/09/16 12:18 PM
Indeno[1,2,3-cd]pyrene	0.0730		0.0487	0.0974	0.0730	U	mg/Kg-dry	10	08/09/16 12:18 PM
Phenanthrene	0.0730		0.0487	0.0974	0.0730	U	mg/Kg-dry	10	08/09/16 12:18 PM
Pyrene	0.0730		0.0487	0.0974	0.0730	U	mg/Kg-dry	10	08/09/16 12:18 PM
IS: Acenaphthene-d10	130		0	50-200	0		%REC	10	08/09/16 12:18 PM
IS: Chrysene-d12	114		0	50-200	0		%REC	10	08/09/16 12:18 PM
IS: Naphthalene-d8	102		0	50-200	0		%REC	10	08/09/16 12:18 PM
IS: Perylene-d12	116		0	50-200	0		%REC	10	08/09/16 12:18 PM
IS: Phenanthrene-d10	94.8		0	50-200	0		%REC	10	08/09/16 12:18 PM
Surr: 2-Fluorobiphenyl	78.8		0	46-115	0		%REC	10	08/09/16 12:18 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU156(4-6)-B
Project:	Laredo SGR	**Lab ID:**	1607317-07
Project No:	04285081.0000.00044	**Collection Date:**	07/27/16 10:28 AM
Lab Order:	1607317	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	87.3	0	58-133	0		%REC	10	08/09/16 12:18 PM

Qualifiers:	*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
	C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
	E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
	MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
	RL	Reporting Limit	S	Spike Recovery outside control limits
	N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *19-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU156(6-8)-B
Project:	Laredo SGR	**Lab ID:**	1607317-08
Project No:	04285081.0000.00044	**Collection Date:**	07/27/16 10:30 AM
Lab Order:	1607317	**Matrix:**	SOIL

Analyses	Result		DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID				**SW6020A**					Analyst: **CVD**
Lead	5.37	JH	0.0935	0.280	0.140		mg/Kg-dry	5	08/10/16 08:41 PM
IS: Bismuth	74.8		0	30-120	0		%REC	5	08/10/16 08:41 PM
PAHS: GC/MS				**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0715		0.0477	0.0953	0.0715	U	mg/Kg-dry	10	08/09/16 12:59 PM
Acenaphthylene	0.0715		0.0477	0.0953	0.0715	U	mg/Kg-dry	10	08/09/16 12:59 PM
Anthracene	0.0715		0.0477	0.0953	0.0715	U	mg/Kg-dry	10	08/09/16 12:59 PM
Benzo[a]anthracene	0.0715		0.0477	0.0953	0.0715	U	mg/Kg-dry	10	08/09/16 12:59 PM
Benzo[a]pyrene	0.0715		0.0477	0.0953	0.0715	U	mg/Kg-dry	10	08/09/16 12:59 PM
Benzo[b]fluoranthene	0.0715		0.0477	0.0953	0.0715	U	mg/Kg-dry	10	08/09/16 12:59 PM
Benzo[e]pyrene	0.0715		0.0477	0.0953	0.0715	U	mg/Kg-dry	10	08/09/16 12:59 PM
Benzo[g,h,i]perylene	0.0715		0.0477	0.0953	0.0715	U	mg/Kg-dry	10	08/09/16 12:59 PM
Benzo[j]fluoranthene	0.0715		0.0477	0.0953	0.0715	NU	mg/Kg-dry	10	08/09/16 12:59 PM
Benzo[k]fluoranthene	0.0715		0.0477	0.0953	0.0715	U	mg/Kg-dry	10	08/09/16 12:59 PM
Chrysene	0.0715		0.0477	0.0953	0.0715	U	mg/Kg-dry	10	08/09/16 12:59 PM
Dibenz[a,h]anthracene	0.0715		0.0477	0.0953	0.0715	U	mg/Kg-dry	10	08/09/16 12:59 PM
Fluoranthene	0.0715		0.0477	0.0953	0.0715	U	mg/Kg-dry	10	08/09/16 12:59 PM
Fluorene	0.0715		0.0477	0.0953	0.0715	U	mg/Kg-dry	10	08/09/16 12:59 PM
Indeno[1,2,3-cd]pyrene	0.0715		0.0477	0.0953	0.0715	U	mg/Kg-dry	10	08/09/16 12:59 PM
Phenanthrene	0.0715		0.0477	0.0953	0.0715	U	mg/Kg-dry	10	08/09/16 12:59 PM
Pyrene	0.0715		0.0477	0.0953	0.0715	U	mg/Kg-dry	10	08/09/16 12:59 PM
IS: Acenaphthene-d10	138		0	50-200	0		%REC	10	08/09/16 12:59 PM
IS: Chrysene-d12	116		0	50-200	0		%REC	10	08/09/16 12:59 PM
IS: Naphthalene-d8	107		0	50-200	0		%REC	10	08/09/16 12:59 PM
IS: Perylene-d12	118		0	50-200	0		%REC	10	08/09/16 12:59 PM
IS: Phenanthrene-d10	99.7		0	50-200	0		%REC	10	08/09/16 12:59 PM
Surr: 2-Fluorobiphenyl	71.4		0	46-115	0		%REC	10	08/09/16 12:59 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU156(6-8)-B
Project:	Laredo SGR	**Lab ID:**	1607317-08
Project No:	04285081.0000.00044	**Collection Date:**	07/27/16 10:30 AM
Lab Order:	1607317	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	80.1	0	58-133	0		%REC	10	08/09/16 12:59 PM

Qualifiers:	*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
	C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
	E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
	MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
	RL	Reporting Limit	S	Spike Recovery outside control limits
	N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *19-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU156(0-2)-C
Project:	Laredo SGR	**Lab ID:**	1607317-09
Project No:	04285081.0000.00044	**Collection Date:**	07/27/16 10:33 AM
Lab Order:	1607317	**Matrix:**	SOIL

Analyses	Result		DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID				**SW6020A**					Analyst: **CVD**
Lead	30.6	JH	0.0935	0.280	0.140		mg/Kg-dry	5	08/10/16 08:30 PM
IS: Bismuth	72.4		0	30-120	0		%REC	5	08/10/16 08:30 PM
PAHS: GC/MS				**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0730		0.0487	0.0974	0.0730	U	mg/Kg-dry	10	08/09/16 01:40 PM
Acenaphthylene	0.0730		0.0487	0.0974	0.0730	U	mg/Kg-dry	10	08/09/16 01:40 PM
Anthracene	0.0730		0.0487	0.0974	0.0730	U	mg/Kg-dry	10	08/09/16 01:40 PM
Benzo[a]anthracene	0.123		0.0487	0.0974	0.0730		mg/Kg-dry	10	08/09/16 01:40 PM
Benzo[a]pyrene	0.164		0.0487	0.0974	0.0730		mg/Kg-dry	10	08/09/16 01:40 PM
Benzo[b]fluoranthene	0.157		0.0487	0.0974	0.0730		mg/Kg-dry	10	08/09/16 01:40 PM
Benzo[e]pyrene	0.127		0.0487	0.0974	0.0730		mg/Kg-dry	10	08/09/16 01:40 PM
Benzo[g,h,i]perylene	0.144		0.0487	0.0974	0.0730		mg/Kg-dry	10	08/09/16 01:40 PM
Benzo[j]fluoranthene	0.0802		0.0487	0.0974	0.0730	JN	mg/Kg-dry	10	08/09/16 01:40 PM
Benzo[k]fluoranthene	0.0768		0.0487	0.0974	0.0730	J	mg/Kg-dry	10	08/09/16 01:40 PM
Chrysene	0.146		0.0487	0.0974	0.0730		mg/Kg-dry	10	08/09/16 01:40 PM
Dibenz[a,h]anthracene	0.0730		0.0487	0.0974	0.0730	U	mg/Kg-dry	10	08/09/16 01:40 PM
Fluoranthene	0.212		0.0487	0.0974	0.0730		mg/Kg-dry	10	08/09/16 01:40 PM
Fluorene	0.0730		0.0487	0.0974	0.0730	U	mg/Kg-dry	10	08/09/16 01:40 PM
Indeno[1,2,3-cd]pyrene	0.122		0.0487	0.0974	0.0730		mg/Kg-dry	10	08/09/16 01:40 PM
Phenanthrene	0.100		0.0487	0.0974	0.0730		mg/Kg-dry	10	08/09/16 01:40 PM
Pyrene	0.182		0.0487	0.0974	0.0730		mg/Kg-dry	10	08/09/16 01:40 PM
IS: Acenaphthene-d10	131		0	50-200	0		%REC	10	08/09/16 01:40 PM
IS: Chrysene-d12	113		0	50-200	0		%REC	10	08/09/16 01:40 PM
IS: Naphthalene-d8	101		0	50-200	0		%REC	10	08/09/16 01:40 PM
IS: Perylene-d12	115		0	50-200	0		%REC	10	08/09/16 01:40 PM
IS: Phenanthrene-d10	95.4		0	50-200	0		%REC	10	08/09/16 01:40 PM
Surr: 2-Fluorobiphenyl	77.0		0	46-115	0		%REC	10	08/09/16 01:40 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU156(0-2)-C
Project:	Laredo SGR	**Lab ID:**	1607317-09
Project No:	04285081.0000.00044	**Collection Date:**	07/27/16 10:33 AM
Lab Order:	1607317	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	85.7	0	58-133	0		%REC	10	08/09/16 01:40 PM

Qualifiers:	*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
	C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
	E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
	MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
	RL	Reporting Limit	S	Spike Recovery outside control limits
	N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU156(2-4)-C
Project:	Laredo SGR	**Lab ID:**	1607317-10
Project No:	04285081.0000.00044	**Collection Date:**	07/27/16 10:35 AM
Lab Order:	1607317	**Matrix:**	SOIL

Analyses	Result		DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID				**SW6020A**					Analyst: **CVD**
Lead	8.23	JH	0.0862	0.259	0.129		mg/Kg-dry	5	08/10/16 08:47 PM
IS: Bismuth	76.5		0	30-120	0		%REC	5	08/10/16 08:47 PM
PAHS: GC/MS				**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0729		0.0486	0.0972	0.0729	U	mg/Kg-dry	10	08/09/16 02:22 PM
Acenaphthylene	0.0729		0.0486	0.0972	0.0729	U	mg/Kg-dry	10	08/09/16 02:22 PM
Anthracene	0.0729		0.0486	0.0972	0.0729	U	mg/Kg-dry	10	08/09/16 02:22 PM
Benzo[a]anthracene	0.0729		0.0486	0.0972	0.0729	U	mg/Kg-dry	10	08/09/16 02:22 PM
Benzo[a]pyrene	0.0729		0.0486	0.0972	0.0729	U	mg/Kg-dry	10	08/09/16 02:22 PM
Benzo[b]fluoranthene	0.0729		0.0486	0.0972	0.0729	U	mg/Kg-dry	10	08/09/16 02:22 PM
Benzo[e]pyrene	0.0729		0.0486	0.0972	0.0729	U	mg/Kg-dry	10	08/09/16 02:22 PM
Benzo[g,h,i]perylene	0.0729		0.0486	0.0972	0.0729	U	mg/Kg-dry	10	08/09/16 02:22 PM
Benzo[j]fluoranthene	0.0729		0.0486	0.0972	0.0729	NU	mg/Kg-dry	10	08/09/16 02:22 PM
Benzo[k]fluoranthene	0.0729		0.0486	0.0972	0.0729	U	mg/Kg-dry	10	08/09/16 02:22 PM
Chrysene	0.0729		0.0486	0.0972	0.0729	U	mg/Kg-dry	10	08/09/16 02:22 PM
Dibenz[a,h]anthracene	0.0729		0.0486	0.0972	0.0729	U	mg/Kg-dry	10	08/09/16 02:22 PM
Fluoranthene	0.0729		0.0486	0.0972	0.0729	U	mg/Kg-dry	10	08/09/16 02:22 PM
Fluorene	0.0729		0.0486	0.0972	0.0729	U	mg/Kg-dry	10	08/09/16 02:22 PM
Indeno[1,2,3-cd]pyrene	0.0729		0.0486	0.0972	0.0729	U	mg/Kg-dry	10	08/09/16 02:22 PM
Phenanthrene	0.0729		0.0486	0.0972	0.0729	U	mg/Kg-dry	10	08/09/16 02:22 PM
Pyrene	0.0729		0.0486	0.0972	0.0729	U	mg/Kg-dry	10	08/09/16 02:22 PM
IS: Acenaphthene-d10	140		0	50-200	0		%REC	10	08/09/16 02:22 PM
IS: Chrysene-d12	120		0	50-200	0		%REC	10	08/09/16 02:22 PM
IS: Naphthalene-d8	108		0	50-200	0		%REC	10	08/09/16 02:22 PM
IS: Perylene-d12	123		0	50-200	0		%REC	10	08/09/16 02:22 PM
IS: Phenanthrene-d10	100		0	50-200	0		%REC	10	08/09/16 02:22 PM
Surr: 2-Fluorobiphenyl	71.0		0	46-115	0		%REC	10	08/09/16 02:22 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU156(2-4)-C
Project:	Laredo SGR	**Lab ID:**	1607317-10
Project No:	04285081.0000.00044	**Collection Date:**	07/27/16 10:35 AM
Lab Order:	1607317	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	79.5	0	58-133	0		%REC	10	08/09/16 02:22 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU156(4-6)-C
Project:	Laredo SGR	**Lab ID:**	1607317-11
Project No:	04285081.0000.00044	**Collection Date:**	07/27/16 10:37 AM
Lab Order:	1607317	**Matrix:**	SOIL

Analyses	Result		DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID				**SW6020A**					Analyst: **CVD**
Lead	7.25	JH	0.0952	0.286	0.143		mg/Kg-dry	5	08/10/16 08:53 PM
IS: Bismuth	76.8		0	30-120	0		%REC	5	08/10/16 08:53 PM
PAHS: GC/MS				**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0737		0.0491	0.0982	0.0737	U	mg/Kg-dry	10	08/09/16 03:03 PM
Acenaphthylene	0.0737		0.0491	0.0982	0.0737	U	mg/Kg-dry	10	08/09/16 03:03 PM
Anthracene	0.0737		0.0491	0.0982	0.0737	U	mg/Kg-dry	10	08/09/16 03:03 PM
Benzo[a]anthracene	0.0737		0.0491	0.0982	0.0737	U	mg/Kg-dry	10	08/09/16 03:03 PM
Benzo[a]pyrene	0.0737		0.0491	0.0982	0.0737	U	mg/Kg-dry	10	08/09/16 03:03 PM
Benzo[b]fluoranthene	0.0737		0.0491	0.0982	0.0737	U	mg/Kg-dry	10	08/09/16 03:03 PM
Benzo[e]pyrene	0.0737		0.0491	0.0982	0.0737	U	mg/Kg-dry	10	08/09/16 03:03 PM
Benzo[g,h,i]perylene	0.0737		0.0491	0.0982	0.0737	U	mg/Kg-dry	10	08/09/16 03:03 PM
Benzo[j]fluoranthene	0.0737		0.0491	0.0982	0.0737	NU	mg/Kg-dry	10	08/09/16 03:03 PM
Benzo[k]fluoranthene	0.0737		0.0491	0.0982	0.0737	U	mg/Kg-dry	10	08/09/16 03:03 PM
Chrysene	0.0737		0.0491	0.0982	0.0737	U	mg/Kg-dry	10	08/09/16 03:03 PM
Dibenz[a,h]anthracene	0.0737		0.0491	0.0982	0.0737	U	mg/Kg-dry	10	08/09/16 03:03 PM
Fluoranthene	0.0737		0.0491	0.0982	0.0737	U	mg/Kg-dry	10	08/09/16 03:03 PM
Fluorene	0.0737		0.0491	0.0982	0.0737	U	mg/Kg-dry	10	08/09/16 03:03 PM
Indeno[1,2,3-cd]pyrene	0.0737		0.0491	0.0982	0.0737	U	mg/Kg-dry	10	08/09/16 03:03 PM
Phenanthrene	0.0737		0.0491	0.0982	0.0737	U	mg/Kg-dry	10	08/09/16 03:03 PM
Pyrene	0.0737		0.0491	0.0982	0.0737	U	mg/Kg-dry	10	08/09/16 03:03 PM
IS: Acenaphthene-d10	138		0	50-200	0		%REC	10	08/09/16 03:03 PM
IS: Chrysene-d12	119		0	50-200	0		%REC	10	08/09/16 03:03 PM
IS: Naphthalene-d8	105		0	50-200	0		%REC	10	08/09/16 03:03 PM
IS: Perylene-d12	121		0	50-200	0		%REC	10	08/09/16 03:03 PM
IS: Phenanthrene-d10	99.6		0	50-200	0		%REC	10	08/09/16 03:03 PM
Surr: 2-Fluorobiphenyl	71.5		0	46-115	0		%REC	10	08/09/16 03:03 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU156(4-6)-C
Project:	Laredo SGR	**Lab ID:**	1607317-11
Project No:	04285081.0000.00044	**Collection Date:**	07/27/16 10:37 AM
Lab Order:	1607317	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	80.5	0	58-133	0		%REC	10	08/09/16 03:03 PM

Qualifiers:	*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
	C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
	E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
	MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
	RL	Reporting Limit	S	Spike Recovery outside control limits
	N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU156(6-8)-C
Project:	Laredo SGR	**Lab ID:**	1607317-12
Project No:	04285081.0000.00044	**Collection Date:**	07/27/16 10:39 AM
Lab Order:	1607317	**Matrix:**	SOIL

Analyses	Result		DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID				**SW6020A**					Analyst: **CVD**
Lead	5.14	JH	0.0885	0.265	0.133		mg/Kg-dry	5	08/10/16 08:59 PM
IS: Bismuth	73.6		0	30-120	0		%REC	5	08/10/16 08:59 PM
PAHS: GC/MS				**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0749		0.0500	0.0999	0.0749	U	mg/Kg-dry	10	08/09/16 03:45 PM
Acenaphthylene	0.0749		0.0500	0.0999	0.0749	U	mg/Kg-dry	10	08/09/16 03:45 PM
Anthracene	0.0749		0.0500	0.0999	0.0749	U	mg/Kg-dry	10	08/09/16 03:45 PM
Benzo[a]anthracene	0.0749		0.0500	0.0999	0.0749	U	mg/Kg-dry	10	08/09/16 03:45 PM
Benzo[a]pyrene	0.0749		0.0500	0.0999	0.0749	U	mg/Kg-dry	10	08/09/16 03:45 PM
Benzo[b]fluoranthene	0.0749		0.0500	0.0999	0.0749	U	mg/Kg-dry	10	08/09/16 03:45 PM
Benzo[e]pyrene	0.0749		0.0500	0.0999	0.0749	U	mg/Kg-dry	10	08/09/16 03:45 PM
Benzo[g,h,i]perylene	0.0749		0.0500	0.0999	0.0749	U	mg/Kg-dry	10	08/09/16 03:45 PM
Benzo[j]fluoranthene	0.0749		0.0500	0.0999	0.0749	NU	mg/Kg-dry	10	08/09/16 03:45 PM
Benzo[k]fluoranthene	0.0749		0.0500	0.0999	0.0749	U	mg/Kg-dry	10	08/09/16 03:45 PM
Chrysene	0.0749		0.0500	0.0999	0.0749	U	mg/Kg-dry	10	08/09/16 03:45 PM
Dibenz[a,h]anthracene	0.0749		0.0500	0.0999	0.0749	U	mg/Kg-dry	10	08/09/16 03:45 PM
Fluoranthene	0.0749		0.0500	0.0999	0.0749	U	mg/Kg-dry	10	08/09/16 03:45 PM
Fluorene	0.0749		0.0500	0.0999	0.0749	U	mg/Kg-dry	10	08/09/16 03:45 PM
Indeno[1,2,3-cd]pyrene	0.0749		0.0500	0.0999	0.0749	U	mg/Kg-dry	10	08/09/16 03:45 PM
Phenanthrene	0.0749		0.0500	0.0999	0.0749	U	mg/Kg-dry	10	08/09/16 03:45 PM
Pyrene	0.0749		0.0500	0.0999	0.0749	U	mg/Kg-dry	10	08/09/16 03:45 PM
IS: Acenaphthene-d10	131		0	50-200	0		%REC	10	08/09/16 03:45 PM
IS: Chrysene-d12	115		0	50-200	0		%REC	10	08/09/16 03:45 PM
IS: Naphthalene-d8	102		0	50-200	0		%REC	10	08/09/16 03:45 PM
IS: Perylene-d12	116		0	50-200	0		%REC	10	08/09/16 03:45 PM
IS: Phenanthrene-d10	94.3		0	50-200	0		%REC	10	08/09/16 03:45 PM
Surr: 2-Fluorobiphenyl	77.5		0	46-115	0		%REC	10	08/09/16 03:45 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU156(6-8)-C
Project:	Laredo SGR	**Lab ID:**	1607317-12
Project No:	04285081.0000.00044	**Collection Date:**	07/27/16 10:39 AM
Lab Order:	1607317	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	84.5	0	58-133	0		%REC	10	08/09/16 03:45 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	EB01(20160727)
Project:	Laredo SGR	**Lab ID:**	1607317-13
Project No:	04285081.0000.00044	**Collection Date:**	07/27/16 10:45 AM
Lab Order:	1607317	**Matrix:**	EQUIP BLANK

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER			**SW6020A**					Analyst: **CVD**
Lead	0.000900	0.000300	0.00100	0.000900	U	mg/L	1	08/10/16 02:16 AM
IS: Bismuth	88.8	0	30-120	0		%REC	1	08/10/16 02:16 AM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Acenaphthene	0.0000796	0.0000498	0.0000996	0.0000796	U	mg/L	1	08/03/16 07:06 PM
Acenaphthylene	0.0000796	0.0000498	0.0000996	0.0000796	U	mg/L	1	08/03/16 07:06 PM
Anthracene	0.0000796	0.0000498	0.0000996	0.0000796	U	mg/L	1	08/03/16 07:06 PM
Benzo[a]anthracene	0.0000796	0.0000498	0.0000996	0.0000796	U	mg/L	1	08/03/16 07:06 PM
Benzo[a]pyrene	0.0000796	0.0000498	0.0000996	0.0000796	U	mg/L	1	08/03/16 07:06 PM
Benzo[b]fluoranthene	0.0000796	0.0000498	0.0000996	0.0000796	U	mg/L	1	08/03/16 07:06 PM
Benzo[e]pyrene	0.0000796	0.0000498	0.0000996	0.0000796	U	mg/L	1	08/03/16 07:06 PM
Benzo[g,h,i]perylene	0.0000796	0.0000498	0.0000996	0.0000796	U	mg/L	1	08/03/16 07:06 PM
Benzo[j]fluoranthene	0.0000796	0.0000498	0.0000996	0.0000796	NU	mg/L	1	08/03/16 07:06 PM
Benzo[k]fluoranthene	0.0000796	0.0000498	0.0000996	0.0000796	U	mg/L	1	08/03/16 07:06 PM
Chrysene	0.0000796	0.0000498	0.0000996	0.0000796	U	mg/L	1	08/03/16 07:06 PM
Dibenz[a,h]anthracene	0.0000796	0.0000498	0.0000996	0.0000796	U	mg/L	1	08/03/16 07:06 PM
Fluoranthene	0.0000796	0.0000498	0.0000996	0.0000796	U	mg/L	1	08/03/16 07:06 PM
Fluorene	0.0000796	0.0000498	0.0000996	0.0000796	U	mg/L	1	08/03/16 07:06 PM
Indeno[1,2,3-cd]pyrene	0.0000796	0.0000498	0.0000996	0.0000796	U	mg/L	1	08/03/16 07:06 PM
Phenanthrene	0.0000796	0.0000498	0.0000996	0.0000796	U	mg/L	1	08/03/16 07:06 PM
Pyrene	0.0000796	0.0000498	0.0000996	0.0000796	U	mg/L	1	08/03/16 07:06 PM
IS: Acenaphthene-d10	98.7	0	50-200	0		%REC	1	08/03/16 07:06 PM
IS: Chrysene-d12	86.4	0	50-200	0		%REC	1	08/03/16 07:06 PM
IS: Naphthalene-d8	85.4	0	50-200	0		%REC	1	08/03/16 07:06 PM
IS: Perylene-d12	88.4	0	50-200	0		%REC	1	08/03/16 07:06 PM
IS: Phenanthrene-d10	103	0	50-200	0		%REC	1	08/03/16 07:06 PM
Surr: 2-Fluorobiphenyl	77.7	0	53-106	0		%REC	1	08/03/16 07:06 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	EB01(20160727)
Project:	Laredo SGR	**Lab ID:**	1607317-13
Project No:	04285081.0000.00044	**Collection Date:**	07/27/16 10:45 AM
Lab Order:	1607317	**Matrix:**	EQUIP BLANK

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Surr: 4-Terphenyl-d14	63.8	0	58-132	0		%REC	1	08/03/16 07:06 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *19-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU080(0-2)-A
Project:	Laredo SGR	**Lab ID:**	1607317-14
Project No:	04285081.0000.00044	**Collection Date:**	07/27/16 12:44 PM
Lab Order:	1607317	**Matrix:**	SOIL

Analyses	Result		DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID				**SW6020A**					Analyst: **CVD**
Lead	58.0	JH	0.0980	0.294	0.147		mg/Kg-dry	5	08/10/16 09:05 PM
IS: Bismuth	74.6		0	30-120	0		%REC	5	08/10/16 09:05 PM
PAHS: GC/MS				**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0735		0.0490	0.0979	0.0735	U	mg/Kg-dry	10	08/09/16 04:26 PM
Acenaphthylene	0.0735		0.0490	0.0979	0.0735	U	mg/Kg-dry	10	08/09/16 04:26 PM
Anthracene	0.0735		0.0490	0.0979	0.0735	U	mg/Kg-dry	10	08/09/16 04:26 PM
Benzo[a]anthracene	0.201		0.0490	0.0979	0.0735		mg/Kg-dry	10	08/09/16 04:26 PM
Benzo[a]pyrene	0.304		0.0490	0.0979	0.0735		mg/Kg-dry	10	08/09/16 04:26 PM
Benzo[b]fluoranthene	0.302		0.0490	0.0979	0.0735		mg/Kg-dry	10	08/09/16 04:26 PM
Benzo[e]pyrene	0.245		0.0490	0.0979	0.0735		mg/Kg-dry	10	08/09/16 04:26 PM
Benzo[g,h,i]perylene	0.274		0.0490	0.0979	0.0735		mg/Kg-dry	10	08/09/16 04:26 PM
Benzo[j]fluoranthene	0.146		0.0490	0.0979	0.0735	N	mg/Kg-dry	10	08/09/16 04:26 PM
Benzo[k]fluoranthene	0.151		0.0490	0.0979	0.0735		mg/Kg-dry	10	08/09/16 04:26 PM
Chrysene	0.261		0.0490	0.0979	0.0735		mg/Kg-dry	10	08/09/16 04:26 PM
Dibenz[a,h]anthracene	0.0604		0.0490	0.0979	0.0735	J	mg/Kg-dry	10	08/09/16 04:26 PM
Fluoranthene	0.341		0.0490	0.0979	0.0735		mg/Kg-dry	10	08/09/16 04:26 PM
Fluorene	0.0735		0.0490	0.0979	0.0735	U	mg/Kg-dry	10	08/09/16 04:26 PM
Indeno[1,2,3-cd]pyrene	0.228		0.0490	0.0979	0.0735		mg/Kg-dry	10	08/09/16 04:26 PM
Phenanthrene	0.236		0.0490	0.0979	0.0735		mg/Kg-dry	10	08/09/16 04:26 PM
Pyrene	0.294		0.0490	0.0979	0.0735		mg/Kg-dry	10	08/09/16 04:26 PM
IS: Acenaphthene-d10	145		0	50-200	0		%REC	10	08/09/16 04:26 PM
IS: Chrysene-d12	122		0	50-200	0		%REC	10	08/09/16 04:26 PM
IS: Naphthalene-d8	111		0	50-200	0		%REC	10	08/09/16 04:26 PM
IS: Perylene-d12	124		0	50-200	0		%REC	10	08/09/16 04:26 PM
IS: Phenanthrene-d10	105		0	50-200	0		%REC	10	08/09/16 04:26 PM
Surr: 2-Fluorobiphenyl	69.7		0	46-115	0		%REC	10	08/09/16 04:26 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU080(0-2)-A
Project:	Laredo SGR	**Lab ID:**	1607317-14
Project No:	04285081.0000.00044	**Collection Date:**	07/27/16 12:44 PM
Lab Order:	1607317	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	76.0	0	58-133	0		%REC	10	08/09/16 04:26 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *19-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU080(2-4)-A
Project:	Laredo SGR	**Lab ID:**	1607317-15
Project No:	04285081.0000.00044	**Collection Date:**	07/27/16 12:46 PM
Lab Order:	1607317	**Matrix:**	SOIL

Analyses	Result		DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID				**SW6020A**					Analyst: **CVD**
Lead	10.7	JH	0.0935	0.280	0.140		mg/Kg-dry	5	08/10/16 09:17 PM
IS: Bismuth	73.2		0	30-120	0		%REC	5	08/10/16 09:17 PM
PAHS: GC/MS				**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0729		0.0486	0.0972	0.0729	U	mg/Kg-dry	10	08/09/16 05:07 PM
Acenaphthylene	0.0729		0.0486	0.0972	0.0729	U	mg/Kg-dry	10	08/09/16 05:07 PM
Anthracene	0.0729		0.0486	0.0972	0.0729	U	mg/Kg-dry	10	08/09/16 05:07 PM
Benzo[a]anthracene	0.0729		0.0486	0.0972	0.0729	U	mg/Kg-dry	10	08/09/16 05:07 PM
Benzo[a]pyrene	0.0729		0.0486	0.0972	0.0729	U	mg/Kg-dry	10	08/09/16 05:07 PM
Benzo[b]fluoranthene	0.0729		0.0486	0.0972	0.0729	U	mg/Kg-dry	10	08/09/16 05:07 PM
Benzo[e]pyrene	0.0729		0.0486	0.0972	0.0729	U	mg/Kg-dry	10	08/09/16 05:07 PM
Benzo[g,h,i]perylene	0.0729		0.0486	0.0972	0.0729	U	mg/Kg-dry	10	08/09/16 05:07 PM
Benzo[j]fluoranthene	0.0729		0.0486	0.0972	0.0729	NU	mg/Kg-dry	10	08/09/16 05:07 PM
Benzo[k]fluoranthene	0.0729		0.0486	0.0972	0.0729	U	mg/Kg-dry	10	08/09/16 05:07 PM
Chrysene	0.0729		0.0486	0.0972	0.0729	U	mg/Kg-dry	10	08/09/16 05:07 PM
Dibenz[a,h]anthracene	0.0729		0.0486	0.0972	0.0729	U	mg/Kg-dry	10	08/09/16 05:07 PM
Fluoranthene	0.0729		0.0486	0.0972	0.0729	U	mg/Kg-dry	10	08/09/16 05:07 PM
Fluorene	0.0729		0.0486	0.0972	0.0729	U	mg/Kg-dry	10	08/09/16 05:07 PM
Indeno[1,2,3-cd]pyrene	0.0729		0.0486	0.0972	0.0729	U	mg/Kg-dry	10	08/09/16 05:07 PM
Phenanthrene	0.0729		0.0486	0.0972	0.0729	U	mg/Kg-dry	10	08/09/16 05:07 PM
Pyrene	0.0729		0.0486	0.0972	0.0729	U	mg/Kg-dry	10	08/09/16 05:07 PM
IS: Acenaphthene-d10	141		0	50-200	0		%REC	10	08/09/16 05:07 PM
IS: Chrysene-d12	118		0	50-200	0		%REC	10	08/09/16 05:07 PM
IS: Naphthalene-d8	110		0	50-200	0		%REC	10	08/09/16 05:07 PM
IS: Perylene-d12	122		0	50-200	0		%REC	10	08/09/16 05:07 PM
IS: Phenanthrene-d10	101		0	50-200	0		%REC	10	08/09/16 05:07 PM
Surr: 2-Fluorobiphenyl	71.6		0	46-115	0		%REC	10	08/09/16 05:07 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU080(2-4)-A
Project:	Laredo SGR	**Lab ID:**	1607317-15
Project No:	04285081.0000.00044	**Collection Date:**	07/27/16 12:46 PM
Lab Order:	1607317	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	77.8	0	58-133	0		%REC	10	08/09/16 05:07 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *19-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU080(4-6)-A
Project:	Laredo SGR	**Lab ID:**	1607317-16
Project No:	04285081.0000.00044	**Collection Date:**	07/27/16 12:48 PM
Lab Order:	1607317	**Matrix:**	SOIL

Analyses	Result		DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID				**SW6020A**					Analyst: **CVD**
Lead	6.81	JH	0.0917	0.275	0.138		mg/Kg-dry	5	08/10/16 09:23 PM
IS: Bismuth	75.1		0	30-120	0		%REC	5	08/10/16 09:23 PM
PAHS: GC/MS				**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0744		0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/09/16 05:48 PM
Acenaphthylene	0.0744		0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/09/16 05:48 PM
Anthracene	0.0744		0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/09/16 05:48 PM
Benzo[a]anthracene	0.116		0.0496	0.0992	0.0744		mg/Kg-dry	10	08/09/16 05:48 PM
Benzo[a]pyrene	0.128		0.0496	0.0992	0.0744		mg/Kg-dry	10	08/09/16 05:48 PM
Benzo[b]fluoranthene	0.129		0.0496	0.0992	0.0744		mg/Kg-dry	10	08/09/16 05:48 PM
Benzo[e]pyrene	0.102		0.0496	0.0992	0.0744		mg/Kg-dry	10	08/09/16 05:48 PM
Benzo[g,h,i]perylene	0.105		0.0496	0.0992	0.0744		mg/Kg-dry	10	08/09/16 05:48 PM
Benzo[j]fluoranthene	0.0648		0.0496	0.0992	0.0744	JN	mg/Kg-dry	10	08/09/16 05:48 PM
Benzo[k]fluoranthene	0.0684		0.0496	0.0992	0.0744	J	mg/Kg-dry	10	08/09/16 05:48 PM
Chrysene	0.130		0.0496	0.0992	0.0744		mg/Kg-dry	10	08/09/16 05:48 PM
Dibenz[a,h]anthracene	0.0744		0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/09/16 05:48 PM
Fluoranthene	0.202		0.0496	0.0992	0.0744		mg/Kg-dry	10	08/09/16 05:48 PM
Fluorene	0.0744		0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/09/16 05:48 PM
Indeno[1,2,3-cd]pyrene	0.0853		0.0496	0.0992	0.0744	J	mg/Kg-dry	10	08/09/16 05:48 PM
Phenanthrene	0.107		0.0496	0.0992	0.0744		mg/Kg-dry	10	08/09/16 05:48 PM
Pyrene	0.171		0.0496	0.0992	0.0744		mg/Kg-dry	10	08/09/16 05:48 PM
IS: Acenaphthene-d10	137		0	50-200	0		%REC	10	08/09/16 05:48 PM
IS: Chrysene-d12	117		0	50-200	0		%REC	10	08/09/16 05:48 PM
IS: Naphthalene-d8	108		0	50-200	0		%REC	10	08/09/16 05:48 PM
IS: Perylene-d12	119		0	50-200	0		%REC	10	08/09/16 05:48 PM
IS: Phenanthrene-d10	99.5		0	50-200	0		%REC	10	08/09/16 05:48 PM
Surr: 2-Fluorobiphenyl	75.1		0	46-115	0		%REC	10	08/09/16 05:48 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU080(4-6)-A
Project:	Laredo SGR	**Lab ID:**	1607317-16
Project No:	04285081.0000.00044	**Collection Date:**	07/27/16 12:48 PM
Lab Order:	1607317	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	82.5	0	58-133	0		%REC	10	08/09/16 05:48 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *19-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU080(6-8)-A
Project:	Laredo SGR	**Lab ID:**	1607317-17
Project No:	04285081.0000.00044	**Collection Date:**	07/27/16 12:50 PM
Lab Order:	1607317	**Matrix:**	SOIL

Analyses	Result		DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID				**SW6020A**					Analyst: **CVD**
Lead	4.15	JH	0.0935	0.280	0.140		mg/Kg-dry	5	08/10/16 09:29 PM
IS: Bismuth	73.9		0	30-120	0		%REC	5	08/10/16 09:29 PM
PAHS: GC/MS				**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0748		0.0499	0.0997	0.0748	U	mg/Kg-dry	10	08/09/16 06:28 PM
Acenaphthylene	0.0748		0.0499	0.0997	0.0748	U	mg/Kg-dry	10	08/09/16 06:28 PM
Anthracene	0.0748		0.0499	0.0997	0.0748	U	mg/Kg-dry	10	08/09/16 06:28 PM
Benzo[a]anthracene	0.0748		0.0499	0.0997	0.0748	U	mg/Kg-dry	10	08/09/16 06:28 PM
Benzo[a]pyrene	0.0748		0.0499	0.0997	0.0748	U	mg/Kg-dry	10	08/09/16 06:28 PM
Benzo[b]fluoranthene	0.0748		0.0499	0.0997	0.0748	U	mg/Kg-dry	10	08/09/16 06:28 PM
Benzo[e]pyrene	0.0748		0.0499	0.0997	0.0748	U	mg/Kg-dry	10	08/09/16 06:28 PM
Benzo[g,h,i]perylene	0.0748		0.0499	0.0997	0.0748	U	mg/Kg-dry	10	08/09/16 06:28 PM
Benzo[j]fluoranthene	0.0748		0.0499	0.0997	0.0748	NU	mg/Kg-dry	10	08/09/16 06:28 PM
Benzo[k]fluoranthene	0.0748		0.0499	0.0997	0.0748	U	mg/Kg-dry	10	08/09/16 06:28 PM
Chrysene	0.0748		0.0499	0.0997	0.0748	U	mg/Kg-dry	10	08/09/16 06:28 PM
Dibenz[a,h]anthracene	0.0748		0.0499	0.0997	0.0748	U	mg/Kg-dry	10	08/09/16 06:28 PM
Fluoranthene	0.0748		0.0499	0.0997	0.0748	U	mg/Kg-dry	10	08/09/16 06:28 PM
Fluorene	0.0748		0.0499	0.0997	0.0748	U	mg/Kg-dry	10	08/09/16 06:28 PM
Indeno[1,2,3-cd]pyrene	0.0748		0.0499	0.0997	0.0748	U	mg/Kg-dry	10	08/09/16 06:28 PM
Phenanthrene	0.0748		0.0499	0.0997	0.0748	U	mg/Kg-dry	10	08/09/16 06:28 PM
Pyrene	0.0748		0.0499	0.0997	0.0748	U	mg/Kg-dry	10	08/09/16 06:28 PM
IS: Acenaphthene-d10	132		0	50-200	0		%REC	10	08/09/16 06:28 PM
IS: Chrysene-d12	113		0	50-200	0		%REC	10	08/09/16 06:28 PM
IS: Naphthalene-d8	103		0	50-200	0		%REC	10	08/09/16 06:28 PM
IS: Perylene-d12	113		0	50-200	0		%REC	10	08/09/16 06:28 PM
IS: Phenanthrene-d10	93.6		0	50-200	0		%REC	10	08/09/16 06:28 PM
Surr: 2-Fluorobiphenyl	78.0		0	46-115	0		%REC	10	08/09/16 06:28 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU080(6-8)-A
Project:	Laredo SGR	**Lab ID:**	1607317-17
Project No:	04285081.0000.00044	**Collection Date:**	07/27/16 12:50 PM
Lab Order:	1607317	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	85.4	0	58-133	0		%REC	10	08/09/16 06:28 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *19-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU080(0-2)-B
Project:	Laredo SGR	**Lab ID:**	1607317-18
Project No:	04285081.0000.00044	**Collection Date:**	07/27/16 12:52 PM
Lab Order:	1607317	**Matrix:**	SOIL

Analyses	Result		DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID				**SW6020A**					Analyst: **CVD**
Lead	40.6	JH	0.0877	0.263	0.132		mg/Kg-dry	5	08/10/16 09:35 PM
IS: Bismuth	73.5		0	30-120	0		%REC	5	08/10/16 09:35 PM
PAHS: GC/MS				**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0735		0.0490	0.0979	0.0735	U	mg/Kg-dry	10	08/09/16 09:49 PM
Acenaphthylene	0.0735		0.0490	0.0979	0.0735	U	mg/Kg-dry	10	08/09/16 09:49 PM
Anthracene	0.0825		0.0490	0.0979	0.0735	J	mg/Kg-dry	10	08/09/16 09:49 PM
Benzo[a]anthracene	0.425		0.0490	0.0979	0.0735		mg/Kg-dry	10	08/09/16 09:49 PM
Benzo[a]pyrene	0.438		0.0490	0.0979	0.0735		mg/Kg-dry	10	08/09/16 09:49 PM
Benzo[b]fluoranthene	0.424		0.0490	0.0979	0.0735		mg/Kg-dry	10	08/09/16 09:49 PM
Benzo[e]pyrene	0.336		0.0490	0.0979	0.0735		mg/Kg-dry	10	08/09/16 09:49 PM
Benzo[g,h,i]perylene	0.336		0.0490	0.0979	0.0735		mg/Kg-dry	10	08/09/16 09:49 PM
Benzo[j]fluoranthene	0.232		0.0490	0.0979	0.0735	N	mg/Kg-dry	10	08/09/16 09:49 PM
Benzo[k]fluoranthene	0.231		0.0490	0.0979	0.0735		mg/Kg-dry	10	08/09/16 09:49 PM
Chrysene	0.504		0.0490	0.0979	0.0735		mg/Kg-dry	10	08/09/16 09:49 PM
Dibenz[a,h]anthracene	0.0798		0.0490	0.0979	0.0735	J	mg/Kg-dry	10	08/09/16 09:49 PM
Fluoranthene	0.897		0.0490	0.0979	0.0735		mg/Kg-dry	10	08/09/16 09:49 PM
Fluorene	0.0735		0.0490	0.0979	0.0735	U	mg/Kg-dry	10	08/09/16 09:49 PM
Indeno[1,2,3-cd]pyrene	0.292		0.0490	0.0979	0.0735		mg/Kg-dry	10	08/09/16 09:49 PM
Phenanthrene	0.459		0.0490	0.0979	0.0735		mg/Kg-dry	10	08/09/16 09:49 PM
Pyrene	0.755		0.0490	0.0979	0.0735		mg/Kg-dry	10	08/09/16 09:49 PM
IS: Acenaphthene-d10	136		0	50-200	0		%REC	10	08/09/16 09:49 PM
IS: Chrysene-d12	115		0	50-200	0		%REC	10	08/09/16 09:49 PM
IS: Naphthalene-d8	108		0	50-200	0		%REC	10	08/09/16 09:49 PM
IS: Perylene-d12	117		0	50-200	0		%REC	10	08/09/16 09:49 PM
IS: Phenanthrene-d10	97.3		0	50-200	0		%REC	10	08/09/16 09:49 PM
Surr: 2-Fluorobiphenyl	74.4		0	46-115	0		%REC	10	08/09/16 09:49 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU080(0-2)-B
Project:	Laredo SGR	**Lab ID:**	1607317-18
Project No:	04285081.0000.00044	**Collection Date:**	07/27/16 12:52 PM
Lab Order:	1607317	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	80.6	0	58-133	0		%REC	10	08/09/16 09:49 PM

Qualifiers:	*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
	C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
	E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
	MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
	RL	Reporting Limit	S	Spike Recovery outside control limits
	N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *19-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU080(2-4)-B
Project:	Laredo SGR	**Lab ID:**	1607317-19
Project No:	04285081.0000.00044	**Collection Date:**	07/27/16 12:54 PM
Lab Order:	1607317	**Matrix:**	SOIL

Analyses	Result		DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID				**SW6020A**					Analyst: **CVD**
Lead	9.60	JH	0.0980	0.294	0.147		mg/Kg-dry	5	08/10/16 10:23 PM
IS: Bismuth	75.8		0	30-120	0		%REC	5	08/10/16 10:23 PM
PAHS: GC/MS				**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0735		0.0490	0.0980	0.0735	U	mg/Kg-dry	10	08/09/16 10:29 PM
Acenaphthylene	0.0735		0.0490	0.0980	0.0735	U	mg/Kg-dry	10	08/09/16 10:29 PM
Anthracene	0.0735		0.0490	0.0980	0.0735	U	mg/Kg-dry	10	08/09/16 10:29 PM
Benzo[a]anthracene	0.0735		0.0490	0.0980	0.0735	U	mg/Kg-dry	10	08/09/16 10:29 PM
Benzo[a]pyrene	0.0735		0.0490	0.0980	0.0735	U	mg/Kg-dry	10	08/09/16 10:29 PM
Benzo[b]fluoranthene	0.0735		0.0490	0.0980	0.0735	U	mg/Kg-dry	10	08/09/16 10:29 PM
Benzo[e]pyrene	0.0735		0.0490	0.0980	0.0735	U	mg/Kg-dry	10	08/09/16 10:29 PM
Benzo[g,h,i]perylene	0.0735		0.0490	0.0980	0.0735	U	mg/Kg-dry	10	08/09/16 10:29 PM
Benzo[j]fluoranthene	0.0735		0.0490	0.0980	0.0735	NU	mg/Kg-dry	10	08/09/16 10:29 PM
Benzo[k]fluoranthene	0.0735		0.0490	0.0980	0.0735	U	mg/Kg-dry	10	08/09/16 10:29 PM
Chrysene	0.0735		0.0490	0.0980	0.0735	U	mg/Kg-dry	10	08/09/16 10:29 PM
Dibenz[a,h]anthracene	0.0735		0.0490	0.0980	0.0735	U	mg/Kg-dry	10	08/09/16 10:29 PM
Fluoranthene	0.0735		0.0490	0.0980	0.0735	U	mg/Kg-dry	10	08/09/16 10:29 PM
Fluorene	0.0735		0.0490	0.0980	0.0735	U	mg/Kg-dry	10	08/09/16 10:29 PM
Indeno[1,2,3-cd]pyrene	0.0735		0.0490	0.0980	0.0735	U	mg/Kg-dry	10	08/09/16 10:29 PM
Phenanthrene	0.0735		0.0490	0.0980	0.0735	U	mg/Kg-dry	10	08/09/16 10:29 PM
Pyrene	0.0735		0.0490	0.0980	0.0735	U	mg/Kg-dry	10	08/09/16 10:29 PM
IS: Acenaphthene-d10	134		0	50-200	0		%REC	10	08/09/16 10:29 PM
IS: Chrysene-d12	112		0	50-200	0		%REC	10	08/09/16 10:29 PM
IS: Naphthalene-d8	108		0	50-200	0		%REC	10	08/09/16 10:29 PM
IS: Perylene-d12	114		0	50-200	0		%REC	10	08/09/16 10:29 PM
IS: Phenanthrene-d10	95.8		0	50-200	0		%REC	10	08/09/16 10:29 PM
Surr: 2-Fluorobiphenyl	75.1		0	46-115	0		%REC	10	08/09/16 10:29 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU080(2-4)-B
Project:	Laredo SGR	**Lab ID:**	1607317-19
Project No:	04285081.0000.00044	**Collection Date:**	07/27/16 12:54 PM
Lab Order:	1607317	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	80.3	0	58-133	0		%REC	10	08/09/16 10:29 PM

Qualifiers:				
	*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
	C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
	E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
	MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
	RL	Reporting Limit	S	Spike Recovery outside control limits
	N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *19-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU080(4-6)-B
Project:	Laredo SGR	**Lab ID:**	1607317-20
Project No:	04285081.0000.00044	**Collection Date:**	07/27/16 12:56 PM
Lab Order:	1607317	**Matrix:**	SOIL

Analyses	Result		DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID				**SW6020A**					Analyst: **CVD**
Lead	5.16	JH	0.0971	0.291	0.146		mg/Kg-dry	5	08/10/16 10:29 PM
IS: Bismuth	69.7		0	30-120	0		%REC	5	08/10/16 10:29 PM
PAHS: GC/MS				**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0744		0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/09/16 11:09 PM
Acenaphthylene	0.0744		0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/09/16 11:09 PM
Anthracene	0.0744		0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/09/16 11:09 PM
Benzo[a]anthracene	0.0744		0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/09/16 11:09 PM
Benzo[a]pyrene	0.0744		0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/09/16 11:09 PM
Benzo[b]fluoranthene	0.0744		0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/09/16 11:09 PM
Benzo[e]pyrene	0.0744		0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/09/16 11:09 PM
Benzo[g,h,i]perylene	0.0744		0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/09/16 11:09 PM
Benzo[j]fluoranthene	0.0744		0.0496	0.0992	0.0744	NU	mg/Kg-dry	10	08/09/16 11:09 PM
Benzo[k]fluoranthene	0.0744		0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/09/16 11:09 PM
Chrysene	0.0744		0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/09/16 11:09 PM
Dibenz[a,h]anthracene	0.0744		0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/09/16 11:09 PM
Fluoranthene	0.0744		0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/09/16 11:09 PM
Fluorene	0.0744		0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/09/16 11:09 PM
Indeno[1,2,3-cd]pyrene	0.0744		0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/09/16 11:09 PM
Phenanthrene	0.0744		0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/09/16 11:09 PM
Pyrene	0.0744		0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/09/16 11:09 PM
IS: Acenaphthene-d10	141		0	50-200	0		%REC	10	08/09/16 11:09 PM
IS: Chrysene-d12	118		0	50-200	0		%REC	10	08/09/16 11:09 PM
IS: Naphthalene-d8	113		0	50-200	0		%REC	10	08/09/16 11:09 PM
IS: Perylene-d12	121		0	50-200	0		%REC	10	08/09/16 11:09 PM
IS: Phenanthrene-d10	99.8		0	50-200	0		%REC	10	08/09/16 11:09 PM
Surr: 2-Fluorobiphenyl	71.7		0	46-115	0		%REC	10	08/09/16 11:09 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU080(4-6)-B
Project:	Laredo SGR	**Lab ID:**	1607317-20
Project No:	04285081.0000.00044	**Collection Date:**	07/27/16 12:56 PM
Lab Order:	1607317	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	79.4	0	58-133	0		%REC	10	08/09/16 11:09 PM

Qualifiers:	*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
	C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
	E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
	MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
	RL	Reporting Limit	S	Spike Recovery outside control limits
	N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *19-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU080(6-8)-B
Project:	Laredo SGR	**Lab ID:**	1607317-21
Project No:	04285081.0000.00044	**Collection Date:**	07/27/16 12:58 PM
Lab Order:	1607317	**Matrix:**	SOIL

Analyses	Result		DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID				**SW6020A**					Analyst: **CVD**
Lead	4.73	JH	0.0962	0.288	0.144		mg/Kg-dry	5	08/10/16 10:34 PM
IS: Bismuth	74.7		0	30-120	0		%REC	5	08/10/16 10:34 PM
PAHS: GC/MS				**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0732		0.0488	0.0976	0.0732	U	mg/Kg-dry	10	08/09/16 11:48 PM
Acenaphthylene	0.0732		0.0488	0.0976	0.0732	U	mg/Kg-dry	10	08/09/16 11:48 PM
Anthracene	0.0732		0.0488	0.0976	0.0732	U	mg/Kg-dry	10	08/09/16 11:48 PM
Benzo[a]anthracene	0.0732		0.0488	0.0976	0.0732	U	mg/Kg-dry	10	08/09/16 11:48 PM
Benzo[a]pyrene	0.0732		0.0488	0.0976	0.0732	U	mg/Kg-dry	10	08/09/16 11:48 PM
Benzo[b]fluoranthene	0.0732		0.0488	0.0976	0.0732	U	mg/Kg-dry	10	08/09/16 11:48 PM
Benzo[e]pyrene	0.0732		0.0488	0.0976	0.0732	U	mg/Kg-dry	10	08/09/16 11:48 PM
Benzo[g,h,i]perylene	0.0732		0.0488	0.0976	0.0732	U	mg/Kg-dry	10	08/09/16 11:48 PM
Benzo[j]fluoranthene	0.0732		0.0488	0.0976	0.0732	NU	mg/Kg-dry	10	08/09/16 11:48 PM
Benzo[k]fluoranthene	0.0732		0.0488	0.0976	0.0732	U	mg/Kg-dry	10	08/09/16 11:48 PM
Chrysene	0.0732		0.0488	0.0976	0.0732	U	mg/Kg-dry	10	08/09/16 11:48 PM
Dibenz[a,h]anthracene	0.0732		0.0488	0.0976	0.0732	U	mg/Kg-dry	10	08/09/16 11:48 PM
Fluoranthene	0.0732		0.0488	0.0976	0.0732	U	mg/Kg-dry	10	08/09/16 11:48 PM
Fluorene	0.0732		0.0488	0.0976	0.0732	U	mg/Kg-dry	10	08/09/16 11:48 PM
Indeno[1,2,3-cd]pyrene	0.0732		0.0488	0.0976	0.0732	U	mg/Kg-dry	10	08/09/16 11:48 PM
Phenanthrene	0.0732		0.0488	0.0976	0.0732	U	mg/Kg-dry	10	08/09/16 11:48 PM
Pyrene	0.0732		0.0488	0.0976	0.0732	U	mg/Kg-dry	10	08/09/16 11:48 PM
IS: Acenaphthene-d10	140		0	50-200	0		%REC	10	08/09/16 11:48 PM
IS: Chrysene-d12	120		0	50-200	0		%REC	10	08/09/16 11:48 PM
IS: Naphthalene-d8	112		0	50-200	0		%REC	10	08/09/16 11:48 PM
IS: Perylene-d12	123		0	50-200	0		%REC	10	08/09/16 11:48 PM
IS: Phenanthrene-d10	99.1		0	50-200	0		%REC	10	08/09/16 11:48 PM
Surr: 2-Fluorobiphenyl	72.1		0	46-115	0		%REC	10	08/09/16 11:48 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU080(6-8)-B
Project:	Laredo SGR	**Lab ID:**	1607317-21
Project No:	04285081.0000.00044	**Collection Date:**	07/27/16 12:58 PM
Lab Order:	1607317	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	82.0	0	58-133	0		%REC	10	08/09/16 11:48 PM

Qualifiers:	*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
	C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
	E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
	MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
	RL	Reporting Limit	S	Spike Recovery outside control limits
	N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *19-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU080(0-2)-C
Project:	Laredo SGR	**Lab ID:**	1607317-22
Project No:	04285081.0000.00044	**Collection Date:**	07/27/16 01:00 PM
Lab Order:	1607317	**Matrix:**	SOIL

Analyses	Result		DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID				**SW6020A**					Analyst: **CVD**
Lead	60.7	JH	0.0935	0.280	0.140		mg/Kg-dry	5	08/10/16 10:40 PM
IS: Bismuth	74.6		0	30-120	0		%REC	5	08/10/16 10:40 PM
PAHS: GC/MS				**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0804		0.0490	0.0979	0.0735	J	mg/Kg-dry	10	08/10/16 12:28 AM
Acenaphthylene	0.0735		0.0490	0.0979	0.0735	U	mg/Kg-dry	10	08/10/16 12:28 AM
Anthracene	0.187		0.0490	0.0979	0.0735		mg/Kg-dry	10	08/10/16 12:28 AM
Benzo[a]anthracene	2.14		0.0490	0.0979	0.0735		mg/Kg-dry	10	08/10/16 12:28 AM
Benzo[a]pyrene	2.85		0.0490	0.0979	0.0735		mg/Kg-dry	10	08/10/16 12:28 AM
Benzo[b]fluoranthene	2.65		0.0490	0.0979	0.0735		mg/Kg-dry	10	08/10/16 12:28 AM
Benzo[e]pyrene	2.11		0.0490	0.0979	0.0735		mg/Kg-dry	10	08/10/16 12:28 AM
Benzo[g,h,i]perylene	2.27		0.0490	0.0979	0.0735		mg/Kg-dry	10	08/10/16 12:28 AM
Benzo[j]fluoranthene	1.38		0.0490	0.0979	0.0735	N	mg/Kg-dry	10	08/10/16 12:28 AM
Benzo[k]fluoranthene	1.39		0.0490	0.0979	0.0735		mg/Kg-dry	10	08/10/16 12:28 AM
Chrysene	2.67		0.0490	0.0979	0.0735		mg/Kg-dry	10	08/10/16 12:28 AM
Dibenz[a,h]anthracene	0.492		0.0490	0.0979	0.0735		mg/Kg-dry	10	08/10/16 12:28 AM
Fluoranthene	3.21		0.0490	0.0979	0.0735		mg/Kg-dry	10	08/10/16 12:28 AM
Fluorene	0.0735		0.0490	0.0979	0.0735	U	mg/Kg-dry	10	08/10/16 12:28 AM
Indeno[1,2,3-cd]pyrene	1.93		0.0490	0.0979	0.0735		mg/Kg-dry	10	08/10/16 12:28 AM
Phenanthrene	1.06		0.0490	0.0979	0.0735		mg/Kg-dry	10	08/10/16 12:28 AM
Pyrene	2.93		0.0490	0.0979	0.0735		mg/Kg-dry	10	08/10/16 12:28 AM
IS: Acenaphthene-d10	132		0	50-200	0		%REC	10	08/10/16 12:28 AM
IS: Chrysene-d12	112		0	50-200	0		%REC	10	08/10/16 12:28 AM
IS: Naphthalene-d8	107		0	50-200	0		%REC	10	08/10/16 12:28 AM
IS: Perylene-d12	116		0	50-200	0		%REC	10	08/10/16 12:28 AM
IS: Phenanthrene-d10	95.3		0	50-200	0		%REC	10	08/10/16 12:28 AM
Surr: 2-Fluorobiphenyl	73.9		0	46-115	0		%REC	10	08/10/16 12:28 AM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU080(0-2)-C
Project:	Laredo SGR	**Lab ID:**	1607317-22
Project No:	04285081.0000.00044	**Collection Date:**	07/27/16 01:00 PM
Lab Order:	1607317	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	81.9	0	58-133	0		%REC	10	08/10/16 12:28 AM

Qualifiers:	*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
	C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
	E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
	MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
	RL	Reporting Limit	S	Spike Recovery outside control limits
	N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *19-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU080(2-4)-C
Project:	Laredo SGR	**Lab ID:**	1607317-23
Project No:	04285081.0000.00044	**Collection Date:**	07/27/16 01:02 PM
Lab Order:	1607317	**Matrix:**	SOIL

Analyses	Result		DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID				**SW6020A**					Analyst: **CVD**
Lead	11.8	JH	0.0971	0.291	0.146		mg/Kg-dry	5	08/10/16 10:46 PM
IS: Bismuth	74.3		0	30-120	0		%REC	5	08/10/16 10:46 PM
PAHS: GC/MS				**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0749		0.0499	0.0998	0.0749	U	mg/Kg-dry	10	08/10/16 01:08 AM
Acenaphthylene	0.0749		0.0499	0.0998	0.0749	U	mg/Kg-dry	10	08/10/16 01:08 AM
Anthracene	0.0749		0.0499	0.0998	0.0749	U	mg/Kg-dry	10	08/10/16 01:08 AM
Benzo[a]anthracene	0.0647		0.0499	0.0998	0.0749	J	mg/Kg-dry	10	08/10/16 01:08 AM
Benzo[a]pyrene	0.0827		0.0499	0.0998	0.0749	J	mg/Kg-dry	10	08/10/16 01:08 AM
Benzo[b]fluoranthene	0.0780		0.0499	0.0998	0.0749	J	mg/Kg-dry	10	08/10/16 01:08 AM
Benzo[e]pyrene	0.0644		0.0499	0.0998	0.0749	J	mg/Kg-dry	10	08/10/16 01:08 AM
Benzo[g,h,i]perylene	0.0665		0.0499	0.0998	0.0749	J	mg/Kg-dry	10	08/10/16 01:08 AM
Benzo[j]fluoranthene	0.0749		0.0499	0.0998	0.0749	NU	mg/Kg-dry	10	08/10/16 01:08 AM
Benzo[k]fluoranthene	0.0749		0.0499	0.0998	0.0749	U	mg/Kg-dry	10	08/10/16 01:08 AM
Chrysene	0.0803		0.0499	0.0998	0.0749	J	mg/Kg-dry	10	08/10/16 01:08 AM
Dibenz[a,h]anthracene	0.0749		0.0499	0.0998	0.0749	U	mg/Kg-dry	10	08/10/16 01:08 AM
Fluoranthene	0.123		0.0499	0.0998	0.0749		mg/Kg-dry	10	08/10/16 01:08 AM
Fluorene	0.0749		0.0499	0.0998	0.0749	U	mg/Kg-dry	10	08/10/16 01:08 AM
Indeno[1,2,3-cd]pyrene	0.0552		0.0499	0.0998	0.0749	J	mg/Kg-dry	10	08/10/16 01:08 AM
Phenanthrene	0.0600		0.0499	0.0998	0.0749	J	mg/Kg-dry	10	08/10/16 01:08 AM
Pyrene	0.111		0.0499	0.0998	0.0749		mg/Kg-dry	10	08/10/16 01:08 AM
IS: Acenaphthene-d10	138		0	50-200	0		%REC	10	08/10/16 01:08 AM
IS: Chrysene-d12	117		0	50-200	0		%REC	10	08/10/16 01:08 AM
IS: Naphthalene-d8	110		0	50-200	0		%REC	10	08/10/16 01:08 AM
IS: Perylene-d12	120		0	50-200	0		%REC	10	08/10/16 01:08 AM
IS: Phenanthrene-d10	98.0		0	50-200	0		%REC	10	08/10/16 01:08 AM
Surr: 2-Fluorobiphenyl	66.9		0	46-115	0		%REC	10	08/10/16 01:08 AM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU080(2-4)-C
Project:	Laredo SGR	**Lab ID:**	1607317-23
Project No:	04285081.0000.00044	**Collection Date:**	07/27/16 01:02 PM
Lab Order:	1607317	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	72.5	0	58-133	0		%REC	10	08/10/16 01:08 AM

Qualifiers:	*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
	C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
	E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
	MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
	RL	Reporting Limit	S	Spike Recovery outside control limits
	N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *19-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU080(4-6)-C
Project:	Laredo SGR	**Lab ID:**	1607317-24
Project No:	04285081.0000.00044	**Collection Date:**	07/27/16 01:04 PM
Lab Order:	1607317	**Matrix:**	SOIL

Analyses	Result		DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID				**SW6020A**					Analyst: **CVD**
Lead	8.10	JH	0.0926	0.278	0.139		mg/Kg-dry	5	08/10/16 10:58 PM
IS: Bismuth	71.2		0	30-120	0		%REC	5	08/10/16 10:58 PM
PAHS: GC/MS				**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0747		0.0498	0.0996	0.0747	U	mg/Kg-dry	10	08/10/16 01:49 AM
Acenaphthylene	0.0747		0.0498	0.0996	0.0747	U	mg/Kg-dry	10	08/10/16 01:49 AM
Anthracene	0.0747		0.0498	0.0996	0.0747	U	mg/Kg-dry	10	08/10/16 01:49 AM
Benzo[a]anthracene	0.0747		0.0498	0.0996	0.0747	U	mg/Kg-dry	10	08/10/16 01:49 AM
Benzo[a]pyrene	0.0747		0.0498	0.0996	0.0747	U	mg/Kg-dry	10	08/10/16 01:49 AM
Benzo[b]fluoranthene	0.0747		0.0498	0.0996	0.0747	U	mg/Kg-dry	10	08/10/16 01:49 AM
Benzo[e]pyrene	0.0747		0.0498	0.0996	0.0747	U	mg/Kg-dry	10	08/10/16 01:49 AM
Benzo[g,h,i]perylene	0.0747		0.0498	0.0996	0.0747	U	mg/Kg-dry	10	08/10/16 01:49 AM
Benzo[j]fluoranthene	0.0747		0.0498	0.0996	0.0747	NU	mg/Kg-dry	10	08/10/16 01:49 AM
Benzo[k]fluoranthene	0.0747		0.0498	0.0996	0.0747	U	mg/Kg-dry	10	08/10/16 01:49 AM
Chrysene	0.0747		0.0498	0.0996	0.0747	U	mg/Kg-dry	10	08/10/16 01:49 AM
Dibenz[a,h]anthracene	0.0747		0.0498	0.0996	0.0747	U	mg/Kg-dry	10	08/10/16 01:49 AM
Fluoranthene	0.0747		0.0498	0.0996	0.0747	U	mg/Kg-dry	10	08/10/16 01:49 AM
Fluorene	0.0747		0.0498	0.0996	0.0747	U	mg/Kg-dry	10	08/10/16 01:49 AM
Indeno[1,2,3-cd]pyrene	0.0747		0.0498	0.0996	0.0747	U	mg/Kg-dry	10	08/10/16 01:49 AM
Phenanthrene	0.0747		0.0498	0.0996	0.0747	U	mg/Kg-dry	10	08/10/16 01:49 AM
Pyrene	0.0747		0.0498	0.0996	0.0747	U	mg/Kg-dry	10	08/10/16 01:49 AM
IS: Acenaphthene-d10	140		0	50-200	0		%REC	10	08/10/16 01:49 AM
IS: Chrysene-d12	119		0	50-200	0		%REC	10	08/10/16 01:49 AM
IS: Naphthalene-d8	112		0	50-200	0		%REC	10	08/10/16 01:49 AM
IS: Perylene-d12	122		0	50-200	0		%REC	10	08/10/16 01:49 AM
IS: Phenanthrene-d10	101		0	50-200	0		%REC	10	08/10/16 01:49 AM
Surr: 2-Fluorobiphenyl	65.3		0	46-115	0		%REC	10	08/10/16 01:49 AM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU080(4-6)-C
Project:	Laredo SGR	**Lab ID:**	1607317-24
Project No:	04285081.0000.00044	**Collection Date:**	07/27/16 01:04 PM
Lab Order:	1607317	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	73.2	0	58-133	0		%REC	10	08/10/16 01:49 AM

Qualifiers:	*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
	C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
	E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
	MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
	RL	Reporting Limit	S	Spike Recovery outside control limits
	N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *19-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU080(6-8)-C
Project:	Laredo SGR	**Lab ID:**	1607317-25
Project No:	04285081.0000.00044	**Collection Date:**	07/27/16 01:06 PM
Lab Order:	1607317	**Matrix:**	SOIL

Analyses	Result		DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID				**SW6020A**					Analyst: **CVD**
Lead	4.73	JH	0.0962	0.288	0.144		mg/Kg-dry	5	08/10/16 11:04 PM
IS: Bismuth	73.1		0	30-120	0		%REC	5	08/10/16 11:04 PM
PAHS: GC/MS				**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0748		0.0499	0.0997	0.0748	U	mg/Kg-dry	10	08/10/16 02:29 AM
Acenaphthylene	0.0748		0.0499	0.0997	0.0748	U	mg/Kg-dry	10	08/10/16 02:29 AM
Anthracene	0.0748		0.0499	0.0997	0.0748	U	mg/Kg-dry	10	08/10/16 02:29 AM
Benzo[a]anthracene	0.0748		0.0499	0.0997	0.0748	U	mg/Kg-dry	10	08/10/16 02:29 AM
Benzo[a]pyrene	0.0748		0.0499	0.0997	0.0748	U	mg/Kg-dry	10	08/10/16 02:29 AM
Benzo[b]fluoranthene	0.0748		0.0499	0.0997	0.0748	U	mg/Kg-dry	10	08/10/16 02:29 AM
Benzo[e]pyrene	0.0748		0.0499	0.0997	0.0748	U	mg/Kg-dry	10	08/10/16 02:29 AM
Benzo[g,h,i]perylene	0.0748		0.0499	0.0997	0.0748	U	mg/Kg-dry	10	08/10/16 02:29 AM
Benzo[j]fluoranthene	0.0748		0.0499	0.0997	0.0748	NU	mg/Kg-dry	10	08/10/16 02:29 AM
Benzo[k]fluoranthene	0.0748		0.0499	0.0997	0.0748	U	mg/Kg-dry	10	08/10/16 02:29 AM
Chrysene	0.0748		0.0499	0.0997	0.0748	U	mg/Kg-dry	10	08/10/16 02:29 AM
Dibenz[a,h]anthracene	0.0748		0.0499	0.0997	0.0748	U	mg/Kg-dry	10	08/10/16 02:29 AM
Fluoranthene	0.0748		0.0499	0.0997	0.0748	U	mg/Kg-dry	10	08/10/16 02:29 AM
Fluorene	0.0748		0.0499	0.0997	0.0748	U	mg/Kg-dry	10	08/10/16 02:29 AM
Indeno[1,2,3-cd]pyrene	0.0748		0.0499	0.0997	0.0748	U	mg/Kg-dry	10	08/10/16 02:29 AM
Phenanthrene	0.0748		0.0499	0.0997	0.0748	U	mg/Kg-dry	10	08/10/16 02:29 AM
Pyrene	0.0748		0.0499	0.0997	0.0748	U	mg/Kg-dry	10	08/10/16 02:29 AM
IS: Acenaphthene-d10	142		0	50-200	0		%REC	10	08/10/16 02:29 AM
IS: Chrysene-d12	119		0	50-200	0		%REC	10	08/10/16 02:29 AM
IS: Naphthalene-d8	113		0	50-200	0		%REC	10	08/10/16 02:29 AM
IS: Perylene-d12	122		0	50-200	0		%REC	10	08/10/16 02:29 AM
IS: Phenanthrene-d10	101		0	50-200	0		%REC	10	08/10/16 02:29 AM
Surr: 2-Fluorobiphenyl	70.0		0	46-115	0		%REC	10	08/10/16 02:29 AM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU080(6-8)-C
Project:	Laredo SGR	**Lab ID:**	1607317-25
Project No:	04285081.0000.00044	**Collection Date:**	07/27/16 01:06 PM
Lab Order:	1607317	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	75.2	0	58-133	0		%REC	10	08/10/16 02:29 AM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *19-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	EB02(20160727)
Project:	Laredo SGR	**Lab ID:**	1607317-26
Project No:	04285081.0000.00044	**Collection Date:**	07/27/16 01:10 PM
Lab Order:	1607317	**Matrix:**	EQUIP BLANK

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER			**SW6020A**					Analyst: **CVD**
Lead	0.000900	0.000300	0.00100	0.000900	U	mg/L	1	08/10/16 02:22 AM
IS: Bismuth	89.7	0	30-120	0		%REC	1	08/10/16 02:22 AM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Acenaphthene	0.0000797	0.0000498	0.0000997	0.0000797	U	mg/L	1	08/03/16 10:26 PM
Acenaphthylene	0.0000797	0.0000498	0.0000997	0.0000797	U	mg/L	1	08/03/16 10:26 PM
Anthracene	0.0000797	0.0000498	0.0000997	0.0000797	U	mg/L	1	08/03/16 10:26 PM
Benzo[a]anthracene	0.0000797	0.0000498	0.0000997	0.0000797	U	mg/L	1	08/03/16 10:26 PM
Benzo[a]pyrene	0.0000797	0.0000498	0.0000997	0.0000797	U	mg/L	1	08/03/16 10:26 PM
Benzo[b]fluoranthene	0.0000797	0.0000498	0.0000997	0.0000797	U	mg/L	1	08/03/16 10:26 PM
Benzo[e]pyrene	0.0000797	0.0000498	0.0000997	0.0000797	U	mg/L	1	08/03/16 10:26 PM
Benzo[g,h,i]perylene	0.0000797	0.0000498	0.0000997	0.0000797	U	mg/L	1	08/03/16 10:26 PM
Benzo[j]fluoranthene	0.0000797	0.0000498	0.0000997	0.0000797	NU	mg/L	1	08/03/16 10:26 PM
Benzo[k]fluoranthene	0.0000797	0.0000498	0.0000997	0.0000797	U	mg/L	1	08/03/16 10:26 PM
Chrysene	0.0000797	0.0000498	0.0000997	0.0000797	U	mg/L	1	08/03/16 10:26 PM
Dibenz[a,h]anthracene	0.0000797	0.0000498	0.0000997	0.0000797	U	mg/L	1	08/03/16 10:26 PM
Fluoranthene	0.0000797	0.0000498	0.0000997	0.0000797	U	mg/L	1	08/03/16 10:26 PM
Fluorene	0.0000797	0.0000498	0.0000997	0.0000797	U	mg/L	1	08/03/16 10:26 PM
Indeno[1,2,3-cd]pyrene	0.0000797	0.0000498	0.0000997	0.0000797	U	mg/L	1	08/03/16 10:26 PM
Phenanthrene	0.0000797	0.0000498	0.0000997	0.0000797	U	mg/L	1	08/03/16 10:26 PM
Pyrene	0.0000797	0.0000498	0.0000997	0.0000797	U	mg/L	1	08/03/16 10:26 PM
IS: Acenaphthene-d10	103	0	50-200	0		%REC	1	08/03/16 10:26 PM
IS: Chrysene-d12	88.7	0	50-200	0		%REC	1	08/03/16 10:26 PM
IS: Naphthalene-d8	88.3	0	50-200	0		%REC	1	08/03/16 10:26 PM
IS: Perylene-d12	89.1	0	50-200	0		%REC	1	08/03/16 10:26 PM
IS: Phenanthrene-d10	109	0	50-200	0		%REC	1	08/03/16 10:26 PM
Surr: 2-Fluorobiphenyl	76.0	0	53-106	0		%REC	1	08/03/16 10:26 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	EB02(20160727)
Project:	Laredo SGR	**Lab ID:**	1607317-26
Project No:	04285081.0000.00044	**Collection Date:**	07/27/16 01:10 PM
Lab Order:	1607317	**Matrix:**	EQUIP BLANK

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Surr: 4-Terphenyl-d14	63.3	0	58-132	0		%REC	1	08/03/16 10:26 PM

Qualifiers:	*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
	C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
	E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
	MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
	RL	Reporting Limit	S	Spike Recovery outside control limits
	N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *19-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU176(0-2)-A
Project:	Laredo SGR	**Lab ID:**	1607317-27
Project No:	04285081.0000.00044	**Collection Date:**	07/27/16 03:00 PM
Lab Order:	1607317	**Matrix:**	SOIL

Analyses	Result		DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID				**SW6020A**					Analyst: **RO**
Lead	47.4	JH	0.0952	0.286	0.143		mg/Kg-dry	5	08/11/16 04:24 PM
IS: Bismuth	102		0	30-120	0		%REC	5	08/11/16 04:24 PM
PAHS: GC/MS				**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0728		0.0485	0.0971	0.0728	U	mg/Kg-dry	10	08/09/16 11:05 AM
Acenaphthylene	0.0728		0.0485	0.0971	0.0728	U	mg/Kg-dry	10	08/09/16 11:05 AM
Anthracene	0.0728		0.0485	0.0971	0.0728	U	mg/Kg-dry	10	08/09/16 11:05 AM
Benzo[a]anthracene	0.0728		0.0485	0.0971	0.0728	U	mg/Kg-dry	10	08/09/16 11:05 AM
Benzo[a]pyrene	0.0495		0.0485	0.0971	0.0728	J	mg/Kg-dry	10	08/09/16 11:05 AM
Benzo[b]fluoranthene	0.0728		0.0485	0.0971	0.0728	U	mg/Kg-dry	10	08/09/16 11:05 AM
Benzo[e]pyrene	0.0728		0.0485	0.0971	0.0728	U	mg/Kg-dry	10	08/09/16 11:05 AM
Benzo[g,h,i]perylene	0.0728		0.0485	0.0971	0.0728	U	mg/Kg-dry	10	08/09/16 11:05 AM
Benzo[j]fluoranthene	0.0728		0.0485	0.0971	0.0728	NU	mg/Kg-dry	10	08/09/16 11:05 AM
Benzo[k]fluoranthene	0.0728		0.0485	0.0971	0.0728	U	mg/Kg-dry	10	08/09/16 11:05 AM
Chrysene	0.0728		0.0485	0.0971	0.0728	U	mg/Kg-dry	10	08/09/16 11:05 AM
Dibenz[a,h]anthracene	0.0728		0.0485	0.0971	0.0728	U	mg/Kg-dry	10	08/09/16 11:05 AM
Fluoranthene	0.0682		0.0485	0.0971	0.0728	J	mg/Kg-dry	10	08/09/16 11:05 AM
Fluorene	0.0728		0.0485	0.0971	0.0728	U	mg/Kg-dry	10	08/09/16 11:05 AM
Indeno[1,2,3-cd]pyrene	0.0728		0.0485	0.0971	0.0728	U	mg/Kg-dry	10	08/09/16 11:05 AM
Phenanthrene	0.0728		0.0485	0.0971	0.0728	U	mg/Kg-dry	10	08/09/16 11:05 AM
Pyrene	0.0628		0.0485	0.0971	0.0728	J	mg/Kg-dry	10	08/09/16 11:05 AM
IS: Acenaphthene-d10	140		0	50-200	0		%REC	10	08/09/16 11:05 AM
IS: Chrysene-d12	105		0	50-200	0		%REC	10	08/09/16 11:05 AM
IS: Naphthalene-d8	122		0	50-200	0		%REC	10	08/09/16 11:05 AM
IS: Perylene-d12	115		0	50-200	0		%REC	10	08/09/16 11:05 AM
IS: Phenanthrene-d10	97.3		0	50-200	0		%REC	10	08/09/16 11:05 AM
Surr: 2-Fluorobiphenyl	73.0		0	46-115	0		%REC	10	08/09/16 11:05 AM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU176(0-2)-A
Project:	Laredo SGR	**Lab ID:**	1607317-27
Project No:	04285081.0000.00044	**Collection Date:**	07/27/16 03:00 PM
Lab Order:	1607317	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	73.3	0	58-133	0		%REC	10	08/09/16 11:05 AM

Qualifiers:	*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
	C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
	E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
	MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
	RL	Reporting Limit	S	Spike Recovery outside control limits
	N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *19-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU176(2-4)-A
Project:	Laredo SGR	**Lab ID:**	1607317-28
Project No:	04285081.0000.00044	**Collection Date:**	07/27/16 03:02 PM
Lab Order:	1607317	**Matrix:**	SOIL

Analyses	Result		DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID				**SW6020A**					Analyst: **CVD**
Lead	8.58	JH	0.0893	0.268	0.134		mg/Kg-dry	5	08/10/16 11:10 PM
IS: Bismuth	72.4		0	30-120	0		%REC	5	08/10/16 11:10 PM
PAHS: GC/MS				**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0727		0.0484	0.0969	0.0727	U	mg/Kg-dry	10	08/09/16 11:45 AM
Acenaphthylene	0.0727		0.0484	0.0969	0.0727	U	mg/Kg-dry	10	08/09/16 11:45 AM
Anthracene	0.0727		0.0484	0.0969	0.0727	U	mg/Kg-dry	10	08/09/16 11:45 AM
Benzo[a]anthracene	0.0544		0.0484	0.0969	0.0727	J	mg/Kg-dry	10	08/09/16 11:45 AM
Benzo[a]pyrene	0.0727		0.0484	0.0969	0.0727	U	mg/Kg-dry	10	08/09/16 11:45 AM
Benzo[b]fluoranthene	0.0727		0.0484	0.0969	0.0727	U	mg/Kg-dry	10	08/09/16 11:45 AM
Benzo[e]pyrene	0.0727		0.0484	0.0969	0.0727	U	mg/Kg-dry	10	08/09/16 11:45 AM
Benzo[g,h,i]perylene	0.0727		0.0484	0.0969	0.0727	U	mg/Kg-dry	10	08/09/16 11:45 AM
Benzo[j]fluoranthene	0.0727		0.0484	0.0969	0.0727	NU	mg/Kg-dry	10	08/09/16 11:45 AM
Benzo[k]fluoranthene	0.0727		0.0484	0.0969	0.0727	U	mg/Kg-dry	10	08/09/16 11:45 AM
Chrysene	0.0599		0.0484	0.0969	0.0727	J	mg/Kg-dry	10	08/09/16 11:45 AM
Dibenz[a,h]anthracene	0.0727		0.0484	0.0969	0.0727	U	mg/Kg-dry	10	08/09/16 11:45 AM
Fluoranthene	0.130		0.0484	0.0969	0.0727		mg/Kg-dry	10	08/09/16 11:45 AM
Fluorene	0.0727		0.0484	0.0969	0.0727	U	mg/Kg-dry	10	08/09/16 11:45 AM
Indeno[1,2,3-cd]pyrene	0.0727		0.0484	0.0969	0.0727	U	mg/Kg-dry	10	08/09/16 11:45 AM
Phenanthrene	0.0803		0.0484	0.0969	0.0727	J	mg/Kg-dry	10	08/09/16 11:45 AM
Pyrene	0.0998		0.0484	0.0969	0.0727		mg/Kg-dry	10	08/09/16 11:45 AM
IS: Acenaphthene-d10	136		0	50-200	0		%REC	10	08/09/16 11:45 AM
IS: Chrysene-d12	96.5		0	50-200	0		%REC	10	08/09/16 11:45 AM
IS: Naphthalene-d8	119		0	50-200	0		%REC	10	08/09/16 11:45 AM
IS: Perylene-d12	107		0	50-200	0		%REC	10	08/09/16 11:45 AM
IS: Phenanthrene-d10	92.2		0	50-200	0		%REC	10	08/09/16 11:45 AM
Surr: 2-Fluorobiphenyl	78.8		0	46-115	0		%REC	10	08/09/16 11:45 AM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU176(2-4)-A
Project:	Laredo SGR	**Lab ID:**	1607317-28
Project No:	04285081.0000.00044	**Collection Date:**	07/27/16 03:02 PM
Lab Order:	1607317	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	79.8	0	58-133	0		%REC	10	08/09/16 11:45 AM

Qualifiers:	*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
	C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
	E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
	MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
	RL	Reporting Limit	S	Spike Recovery outside control limits
	N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *19-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU176(4-6)-A
Project:	Laredo SGR	**Lab ID:**	1607317-29
Project No:	04285081.0000.00044	**Collection Date:**	07/27/16 03:04 PM
Lab Order:	1607317	**Matrix:**	SOIL

Analyses	Result		DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID				**SW6020A**					Analyst: **CVD**
Lead	6.82	JH	0.0885	0.265	0.133		mg/Kg-dry	5	08/10/16 11:16 PM
IS: Bismuth	72.5		0	30-120	0		%REC	5	08/10/16 11:16 PM
PAHS: GC/MS				**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0743		0.0495	0.0990	0.0743	U	mg/Kg-dry	10	08/09/16 12:25 PM
Acenaphthylene	0.0743		0.0495	0.0990	0.0743	U	mg/Kg-dry	10	08/09/16 12:25 PM
Anthracene	0.0743		0.0495	0.0990	0.0743	U	mg/Kg-dry	10	08/09/16 12:25 PM
Benzo[a]anthracene	0.0743		0.0495	0.0990	0.0743	U	mg/Kg-dry	10	08/09/16 12:25 PM
Benzo[a]pyrene	0.0743		0.0495	0.0990	0.0743	U	mg/Kg-dry	10	08/09/16 12:25 PM
Benzo[b]fluoranthene	0.0743		0.0495	0.0990	0.0743	U	mg/Kg-dry	10	08/09/16 12:25 PM
Benzo[e]pyrene	0.0743		0.0495	0.0990	0.0743	U	mg/Kg-dry	10	08/09/16 12:25 PM
Benzo[g,h,i]perylene	0.0743		0.0495	0.0990	0.0743	U	mg/Kg-dry	10	08/09/16 12:25 PM
Benzo[j]fluoranthene	0.0743		0.0495	0.0990	0.0743	NU	mg/Kg-dry	10	08/09/16 12:25 PM
Benzo[k]fluoranthene	0.0743		0.0495	0.0990	0.0743	U	mg/Kg-dry	10	08/09/16 12:25 PM
Chrysene	0.0743		0.0495	0.0990	0.0743	U	mg/Kg-dry	10	08/09/16 12:25 PM
Dibenz[a,h]anthracene	0.0743		0.0495	0.0990	0.0743	U	mg/Kg-dry	10	08/09/16 12:25 PM
Fluoranthene	0.0743		0.0495	0.0990	0.0743	U	mg/Kg-dry	10	08/09/16 12:25 PM
Fluorene	0.0743		0.0495	0.0990	0.0743	U	mg/Kg-dry	10	08/09/16 12:25 PM
Indeno[1,2,3-cd]pyrene	0.0743		0.0495	0.0990	0.0743	U	mg/Kg-dry	10	08/09/16 12:25 PM
Phenanthrene	0.0743		0.0495	0.0990	0.0743	U	mg/Kg-dry	10	08/09/16 12:25 PM
Pyrene	0.0743		0.0495	0.0990	0.0743	U	mg/Kg-dry	10	08/09/16 12:25 PM
IS: Acenaphthene-d10	139		0	50-200	0		%REC	10	08/09/16 12:25 PM
IS: Chrysene-d12	101		0	50-200	0		%REC	10	08/09/16 12:25 PM
IS: Naphthalene-d8	121		0	50-200	0		%REC	10	08/09/16 12:25 PM
IS: Perylene-d12	110		0	50-200	0		%REC	10	08/09/16 12:25 PM
IS: Phenanthrene-d10	95.3		0	50-200	0		%REC	10	08/09/16 12:25 PM
Surr: 2-Fluorobiphenyl	76.8		0	46-115	0		%REC	10	08/09/16 12:25 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU176(4-6)-A
Project:	Laredo SGR	**Lab ID:**	1607317-29
Project No:	04285081.0000.00044	**Collection Date:**	07/27/16 03:04 PM
Lab Order:	1607317	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	78.4	0	58-133	0		%REC	10	08/09/16 12:25 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *19-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU176(6-8)-A
Project:	Laredo SGR	**Lab ID:**	1607317-30
Project No:	04285081.0000.00044	**Collection Date:**	07/27/16 03:06 PM
Lab Order:	1607317	**Matrix:**	SOIL

Analyses	Result		DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID				**SW6020A**					Analyst: **CVD**
Lead	5.69	JH	0.0909	0.273	0.136		mg/Kg-dry	5	08/10/16 11:22 PM
IS: Bismuth	73.9		0	30-120	0		%REC	5	08/10/16 11:22 PM
PAHS: GC/MS				**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0740		0.0494	0.0987	0.0740	U	mg/Kg-dry	10	08/09/16 01:05 PM
Acenaphthylene	0.0740		0.0494	0.0987	0.0740	U	mg/Kg-dry	10	08/09/16 01:05 PM
Anthracene	0.0740		0.0494	0.0987	0.0740	U	mg/Kg-dry	10	08/09/16 01:05 PM
Benzo[a]anthracene	0.0740		0.0494	0.0987	0.0740	U	mg/Kg-dry	10	08/09/16 01:05 PM
Benzo[a]pyrene	0.0740		0.0494	0.0987	0.0740	U	mg/Kg-dry	10	08/09/16 01:05 PM
Benzo[b]fluoranthene	0.0740		0.0494	0.0987	0.0740	U	mg/Kg-dry	10	08/09/16 01:05 PM
Benzo[e]pyrene	0.0740		0.0494	0.0987	0.0740	U	mg/Kg-dry	10	08/09/16 01:05 PM
Benzo[g,h,i]perylene	0.0740		0.0494	0.0987	0.0740	U	mg/Kg-dry	10	08/09/16 01:05 PM
Benzo[j]fluoranthene	0.0740		0.0494	0.0987	0.0740	NU	mg/Kg-dry	10	08/09/16 01:05 PM
Benzo[k]fluoranthene	0.0740		0.0494	0.0987	0.0740	U	mg/Kg-dry	10	08/09/16 01:05 PM
Chrysene	0.0740		0.0494	0.0987	0.0740	U	mg/Kg-dry	10	08/09/16 01:05 PM
Dibenz[a,h]anthracene	0.0740		0.0494	0.0987	0.0740	U	mg/Kg-dry	10	08/09/16 01:05 PM
Fluoranthene	0.0740		0.0494	0.0987	0.0740	U	mg/Kg-dry	10	08/09/16 01:05 PM
Fluorene	0.0740		0.0494	0.0987	0.0740	U	mg/Kg-dry	10	08/09/16 01:05 PM
Indeno[1,2,3-cd]pyrene	0.0740		0.0494	0.0987	0.0740	U	mg/Kg-dry	10	08/09/16 01:05 PM
Phenanthrene	0.0740		0.0494	0.0987	0.0740	U	mg/Kg-dry	10	08/09/16 01:05 PM
Pyrene	0.0740		0.0494	0.0987	0.0740	U	mg/Kg-dry	10	08/09/16 01:05 PM
IS: Acenaphthene-d10	147		0	50-200	0		%REC	10	08/09/16 01:05 PM
IS: Chrysene-d12	96.6		0	50-200	0		%REC	10	08/09/16 01:05 PM
IS: Naphthalene-d8	116		0	50-200	0		%REC	10	08/09/16 01:05 PM
IS: Perylene-d12	104		0	50-200	0		%REC	10	08/09/16 01:05 PM
IS: Phenanthrene-d10	98.4		0	50-200	0		%REC	10	08/09/16 01:05 PM
Surr: 2-Fluorobiphenyl	79.4		0	46-115	0		%REC	10	08/09/16 01:05 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU176(6-8)-A
Project:	Laredo SGR	**Lab ID:**	1607317-30
Project No:	04285081.0000.00044	**Collection Date:**	07/27/16 03:06 PM
Lab Order:	1607317	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	70.7	0	58-133	0		%REC	10	08/09/16 01:05 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *19-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU176(0-2)-B
Project:	Laredo SGR	**Lab ID:**	1607317-31
Project No:	04285081.0000.00044	**Collection Date:**	07/27/16 03:15 PM
Lab Order:	1607317	**Matrix:**	SOIL

Analyses	Result		DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID				**SW6020A**					Analyst: **CVD**
Lead	63.1	JH	0.0943	0.283	0.142		mg/Kg-dry	5	08/11/16 12:29 AM
IS: Bismuth	59.5		0	30-120	0		%REC	5	08/11/16 12:29 AM
PAHS: GC/MS				**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0746		0.0497	0.0994	0.0746	U	mg/Kg-dry	10	08/09/16 01:45 PM
Acenaphthylene	0.0746		0.0497	0.0994	0.0746	U	mg/Kg-dry	10	08/09/16 01:45 PM
Anthracene	0.0746		0.0497	0.0994	0.0746	U	mg/Kg-dry	10	08/09/16 01:45 PM
Benzo[a]anthracene	0.0746		0.0497	0.0994	0.0746	U	mg/Kg-dry	10	08/09/16 01:45 PM
Benzo[a]pyrene	0.0649		0.0497	0.0994	0.0746	J	mg/Kg-dry	10	08/09/16 01:45 PM
Benzo[b]fluoranthene	0.0643		0.0497	0.0994	0.0746	J	mg/Kg-dry	10	08/09/16 01:45 PM
Benzo[e]pyrene	0.0746		0.0497	0.0994	0.0746	U	mg/Kg-dry	10	08/09/16 01:45 PM
Benzo[g,h,i]perylene	0.0614		0.0497	0.0994	0.0746	J	mg/Kg-dry	10	08/09/16 01:45 PM
Benzo[j]fluoranthene	0.0746		0.0497	0.0994	0.0746	NU	mg/Kg-dry	10	08/09/16 01:45 PM
Benzo[k]fluoranthene	0.0746		0.0497	0.0994	0.0746	U	mg/Kg-dry	10	08/09/16 01:45 PM
Chrysene	0.0625		0.0497	0.0994	0.0746	J	mg/Kg-dry	10	08/09/16 01:45 PM
Dibenz[a,h]anthracene	0.0746		0.0497	0.0994	0.0746	U	mg/Kg-dry	10	08/09/16 01:45 PM
Fluoranthene	0.0745		0.0497	0.0994	0.0746	J	mg/Kg-dry	10	08/09/16 01:45 PM
Fluorene	0.0746		0.0497	0.0994	0.0746	U	mg/Kg-dry	10	08/09/16 01:45 PM
Indeno[1,2,3-cd]pyrene	0.0746		0.0497	0.0994	0.0746	U	mg/Kg-dry	10	08/09/16 01:45 PM
Phenanthrene	0.0746		0.0497	0.0994	0.0746	U	mg/Kg-dry	10	08/09/16 01:45 PM
Pyrene	0.0686		0.0497	0.0994	0.0746	J	mg/Kg-dry	10	08/09/16 01:45 PM
IS: Acenaphthene-d10	136		0	50-200	0		%REC	10	08/09/16 01:45 PM
IS: Chrysene-d12	103		0	50-200	0		%REC	10	08/09/16 01:45 PM
IS: Naphthalene-d8	122		0	50-200	0		%REC	10	08/09/16 01:45 PM
IS: Perylene-d12	111		0	50-200	0		%REC	10	08/09/16 01:45 PM
IS: Phenanthrene-d10	95.0		0	50-200	0		%REC	10	08/09/16 01:45 PM
Surr: 2-Fluorobiphenyl	77.7		0	46-115	0		%REC	10	08/09/16 01:45 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU176(0-2)-B
Project:	Laredo SGR	**Lab ID:**	1607317-31
Project No:	04285081.0000.00044	**Collection Date:**	07/27/16 03:15 PM
Lab Order:	1607317	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	80.6	0	58-133	0		%REC	10	08/09/16 01:45 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU176(2-4)-B
Project:	Laredo SGR	**Lab ID:**	1607317-32
Project No:	04285081.0000.00044	**Collection Date:**	07/27/16 03:17 PM
Lab Order:	1607317	**Matrix:**	SOIL

Analyses	Result		DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID				**SW6020A**					Analyst: **CVD**
Lead	8.55	JH	0.0877	0.263	0.132		mg/Kg-dry	5	08/11/16 12:59 AM
IS: Bismuth	70.0		0	30-120	0		%REC	5	08/11/16 12:59 AM
PAHS: GC/MS				**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0735		0.0490	0.0980	0.0735	U	mg/Kg-dry	10	08/09/16 02:25 PM
Acenaphthylene	0.0735		0.0490	0.0980	0.0735	U	mg/Kg-dry	10	08/09/16 02:25 PM
Anthracene	0.0735		0.0490	0.0980	0.0735	U	mg/Kg-dry	10	08/09/16 02:25 PM
Benzo[a]anthracene	0.0735		0.0490	0.0980	0.0735	U	mg/Kg-dry	10	08/09/16 02:25 PM
Benzo[a]pyrene	0.0735		0.0490	0.0980	0.0735	U	mg/Kg-dry	10	08/09/16 02:25 PM
Benzo[b]fluoranthene	0.0735		0.0490	0.0980	0.0735	U	mg/Kg-dry	10	08/09/16 02:25 PM
Benzo[e]pyrene	0.0735		0.0490	0.0980	0.0735	U	mg/Kg-dry	10	08/09/16 02:25 PM
Benzo[g,h,i]perylene	0.0735		0.0490	0.0980	0.0735	U	mg/Kg-dry	10	08/09/16 02:25 PM
Benzo[j]fluoranthene	0.0735		0.0490	0.0980	0.0735	NU	mg/Kg-dry	10	08/09/16 02:25 PM
Benzo[k]fluoranthene	0.0735		0.0490	0.0980	0.0735	U	mg/Kg-dry	10	08/09/16 02:25 PM
Chrysene	0.0735		0.0490	0.0980	0.0735	U	mg/Kg-dry	10	08/09/16 02:25 PM
Dibenz[a,h]anthracene	0.0735		0.0490	0.0980	0.0735	U	mg/Kg-dry	10	08/09/16 02:25 PM
Fluoranthene	0.0735		0.0490	0.0980	0.0735	U	mg/Kg-dry	10	08/09/16 02:25 PM
Fluorene	0.0735		0.0490	0.0980	0.0735	U	mg/Kg-dry	10	08/09/16 02:25 PM
Indeno[1,2,3-cd]pyrene	0.0735		0.0490	0.0980	0.0735	U	mg/Kg-dry	10	08/09/16 02:25 PM
Phenanthrene	0.0735		0.0490	0.0980	0.0735	U	mg/Kg-dry	10	08/09/16 02:25 PM
Pyrene	0.0735		0.0490	0.0980	0.0735	U	mg/Kg-dry	10	08/09/16 02:25 PM
IS: Acenaphthene-d10	138		0	50-200	0		%REC	10	08/09/16 02:25 PM
IS: Chrysene-d12	103		0	50-200	0		%REC	10	08/09/16 02:25 PM
IS: Naphthalene-d8	122		0	50-200	0		%REC	10	08/09/16 02:25 PM
IS: Perylene-d12	112		0	50-200	0		%REC	10	08/09/16 02:25 PM
IS: Phenanthrene-d10	98.9		0	50-200	0		%REC	10	08/09/16 02:25 PM
Surr: 2-Fluorobiphenyl	75.2		0	46-115	0		%REC	10	08/09/16 02:25 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU176(2-4)-B
Project:	Laredo SGR	**Lab ID:**	1607317-32
Project No:	04285081.0000.00044	**Collection Date:**	07/27/16 03:17 PM
Lab Order:	1607317	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	76.3	0	58-133	0		%REC	10	08/09/16 02:25 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU176(4-6)-B
Project:	Laredo SGR	**Lab ID:**	1607317-33
Project No:	04285081.0000.00044	**Collection Date:**	07/27/16 03:19 PM
Lab Order:	1607317	**Matrix:**	SOIL

Analyses	Result		DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID				**SW6020A**					Analyst: **CVD**
Lead	8.12	JH	0.0990	0.297	0.149		mg/Kg-dry	5	08/11/16 01:05 AM
IS: Bismuth	67.0		0	30-120	0		%REC	5	08/11/16 01:05 AM
PAHS: GC/MS				**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0730		0.0486	0.0973	0.0730	U	mg/Kg-dry	10	08/09/16 03:06 PM
Acenaphthylene	0.0730		0.0486	0.0973	0.0730	U	mg/Kg-dry	10	08/09/16 03:06 PM
Anthracene	0.0730		0.0486	0.0973	0.0730	U	mg/Kg-dry	10	08/09/16 03:06 PM
Benzo[a]anthracene	0.0730		0.0486	0.0973	0.0730	U	mg/Kg-dry	10	08/09/16 03:06 PM
Benzo[a]pyrene	0.0730		0.0486	0.0973	0.0730	U	mg/Kg-dry	10	08/09/16 03:06 PM
Benzo[b]fluoranthene	0.0730		0.0486	0.0973	0.0730	U	mg/Kg-dry	10	08/09/16 03:06 PM
Benzo[e]pyrene	0.0730		0.0486	0.0973	0.0730	U	mg/Kg-dry	10	08/09/16 03:06 PM
Benzo[g,h,i]perylene	0.0730		0.0486	0.0973	0.0730	U	mg/Kg-dry	10	08/09/16 03:06 PM
Benzo[j]fluoranthene	0.0730		0.0486	0.0973	0.0730	NU	mg/Kg-dry	10	08/09/16 03:06 PM
Benzo[k]fluoranthene	0.0730		0.0486	0.0973	0.0730	U	mg/Kg-dry	10	08/09/16 03:06 PM
Chrysene	0.0730		0.0486	0.0973	0.0730	U	mg/Kg-dry	10	08/09/16 03:06 PM
Dibenz[a,h]anthracene	0.0730		0.0486	0.0973	0.0730	U	mg/Kg-dry	10	08/09/16 03:06 PM
Fluoranthene	0.0730		0.0486	0.0973	0.0730	U	mg/Kg-dry	10	08/09/16 03:06 PM
Fluorene	0.0730		0.0486	0.0973	0.0730	U	mg/Kg-dry	10	08/09/16 03:06 PM
Indeno[1,2,3-cd]pyrene	0.0730		0.0486	0.0973	0.0730	U	mg/Kg-dry	10	08/09/16 03:06 PM
Phenanthrene	0.0730		0.0486	0.0973	0.0730	U	mg/Kg-dry	10	08/09/16 03:06 PM
Pyrene	0.0730		0.0486	0.0973	0.0730	U	mg/Kg-dry	10	08/09/16 03:06 PM
IS: Acenaphthene-d10	133		0	50-200	0		%REC	10	08/09/16 03:06 PM
IS: Chrysene-d12	97.6		0	50-200	0		%REC	10	08/09/16 03:06 PM
IS: Naphthalene-d8	117		0	50-200	0		%REC	10	08/09/16 03:06 PM
IS: Perylene-d12	106		0	50-200	0		%REC	10	08/09/16 03:06 PM
IS: Phenanthrene-d10	95.4		0	50-200	0		%REC	10	08/09/16 03:06 PM
Surr: 2-Fluorobiphenyl	80.1		0	46-115	0		%REC	10	08/09/16 03:06 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU176(4-6)-B
Project:	Laredo SGR	**Lab ID:**	1607317-33
Project No:	04285081.0000.00044	**Collection Date:**	07/27/16 03:19 PM
Lab Order:	1607317	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	81.1	0	58-133	0		%REC	10	08/09/16 03:06 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *19-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU176(6-8)-B
Project:	Laredo SGR	**Lab ID:**	1607317-34
Project No:	04285081.0000.00044	**Collection Date:**	07/27/16 03:21 PM
Lab Order:	1607317	**Matrix:**	SOIL

Analyses	Result		DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID				**SW6020A**					Analyst: **CVD**
Lead	8.26	JH	0.0862	0.259	0.129		mg/Kg-dry	5	08/11/16 01:11 AM
IS: Bismuth	64.8		0	30-120	0		%REC	5	08/11/16 01:11 AM
PAHS: GC/MS				**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0702		0.0468	0.0935	0.0702	U	mg/Kg-dry	10	08/09/16 03:46 PM
Acenaphthylene	0.0702		0.0468	0.0935	0.0702	U	mg/Kg-dry	10	08/09/16 03:46 PM
Anthracene	0.0702		0.0468	0.0935	0.0702	U	mg/Kg-dry	10	08/09/16 03:46 PM
Benzo[a]anthracene	0.0702		0.0468	0.0935	0.0702	U	mg/Kg-dry	10	08/09/16 03:46 PM
Benzo[a]pyrene	0.0702		0.0468	0.0935	0.0702	U	mg/Kg-dry	10	08/09/16 03:46 PM
Benzo[b]fluoranthene	0.0702		0.0468	0.0935	0.0702	U	mg/Kg-dry	10	08/09/16 03:46 PM
Benzo[e]pyrene	0.0702		0.0468	0.0935	0.0702	U	mg/Kg-dry	10	08/09/16 03:46 PM
Benzo[g,h,i]perylene	0.0702		0.0468	0.0935	0.0702	U	mg/Kg-dry	10	08/09/16 03:46 PM
Benzo[j]fluoranthene	0.0702		0.0468	0.0935	0.0702	NU	mg/Kg-dry	10	08/09/16 03:46 PM
Benzo[k]fluoranthene	0.0702		0.0468	0.0935	0.0702	U	mg/Kg-dry	10	08/09/16 03:46 PM
Chrysene	0.0702		0.0468	0.0935	0.0702	U	mg/Kg-dry	10	08/09/16 03:46 PM
Dibenz[a,h]anthracene	0.0702		0.0468	0.0935	0.0702	U	mg/Kg-dry	10	08/09/16 03:46 PM
Fluoranthene	0.0702		0.0468	0.0935	0.0702	U	mg/Kg-dry	10	08/09/16 03:46 PM
Fluorene	0.0702		0.0468	0.0935	0.0702	U	mg/Kg-dry	10	08/09/16 03:46 PM
Indeno[1,2,3-cd]pyrene	0.0702		0.0468	0.0935	0.0702	U	mg/Kg-dry	10	08/09/16 03:46 PM
Phenanthrene	0.0702		0.0468	0.0935	0.0702	U	mg/Kg-dry	10	08/09/16 03:46 PM
Pyrene	0.0702		0.0468	0.0935	0.0702	U	mg/Kg-dry	10	08/09/16 03:46 PM
IS: Acenaphthene-d10	144		0	50-200	0		%REC	10	08/09/16 03:46 PM
IS: Chrysene-d12	106		0	50-200	0		%REC	10	08/09/16 03:46 PM
IS: Naphthalene-d8	125		0	50-200	0		%REC	10	08/09/16 03:46 PM
IS: Perylene-d12	113		0	50-200	0		%REC	10	08/09/16 03:46 PM
IS: Phenanthrene-d10	101		0	50-200	0		%REC	10	08/09/16 03:46 PM
Surr: 2-Fluorobiphenyl	74.8		0	46-115	0		%REC	10	08/09/16 03:46 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU176(6-8)-B
Project:	Laredo SGR	**Lab ID:**	1607317-34
Project No:	04285081.0000.00044	**Collection Date:**	07/27/16 03:21 PM
Lab Order:	1607317	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	75.9	0	58-133	0		%REC	10	08/09/16 03:46 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *19-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU176(0-2)-C
Project:	Laredo SGR	**Lab ID:**	1607317-35
Project No:	04285081.0000.00044	**Collection Date:**	07/27/16 03:22 PM
Lab Order:	1607317	**Matrix:**	SOIL

Analyses	Result		DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID				**SW6020A**					Analyst: **CVD**
Lead	34.0	JH	0.0990	0.297	0.149		mg/Kg-dry	5	08/11/16 01:16 AM
IS: Bismuth	62.8		0	30-120	0		%REC	5	08/11/16 01:16 AM
PAHS: GC/MS				**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0735		0.0490	0.0980	0.0735	U	mg/Kg-dry	10	08/09/16 04:27 PM
Acenaphthylene	0.0735		0.0490	0.0980	0.0735	U	mg/Kg-dry	10	08/09/16 04:27 PM
Anthracene	0.0735		0.0490	0.0980	0.0735	U	mg/Kg-dry	10	08/09/16 04:27 PM
Benzo[a]anthracene	0.0735		0.0490	0.0980	0.0735	U	mg/Kg-dry	10	08/09/16 04:27 PM
Benzo[a]pyrene	0.0735		0.0490	0.0980	0.0735	U	mg/Kg-dry	10	08/09/16 04:27 PM
Benzo[b]fluoranthene	0.0735		0.0490	0.0980	0.0735	U	mg/Kg-dry	10	08/09/16 04:27 PM
Benzo[e]pyrene	0.0735		0.0490	0.0980	0.0735	U	mg/Kg-dry	10	08/09/16 04:27 PM
Benzo[g,h,i]perylene	0.0735		0.0490	0.0980	0.0735	U	mg/Kg-dry	10	08/09/16 04:27 PM
Benzo[j]fluoranthene	0.0735		0.0490	0.0980	0.0735	NU	mg/Kg-dry	10	08/09/16 04:27 PM
Benzo[k]fluoranthene	0.0735		0.0490	0.0980	0.0735	U	mg/Kg-dry	10	08/09/16 04:27 PM
Chrysene	0.0735		0.0490	0.0980	0.0735	U	mg/Kg-dry	10	08/09/16 04:27 PM
Dibenz[a,h]anthracene	0.0735		0.0490	0.0980	0.0735	U	mg/Kg-dry	10	08/09/16 04:27 PM
Fluoranthene	0.0511		0.0490	0.0980	0.0735	J	mg/Kg-dry	10	08/09/16 04:27 PM
Fluorene	0.0735		0.0490	0.0980	0.0735	U	mg/Kg-dry	10	08/09/16 04:27 PM
Indeno[1,2,3-cd]pyrene	0.0735		0.0490	0.0980	0.0735	U	mg/Kg-dry	10	08/09/16 04:27 PM
Phenanthrene	0.0735		0.0490	0.0980	0.0735	U	mg/Kg-dry	10	08/09/16 04:27 PM
Pyrene	0.0735		0.0490	0.0980	0.0735	U	mg/Kg-dry	10	08/09/16 04:27 PM
IS: Acenaphthene-d10	136		0	50-200	0		%REC	10	08/09/16 04:27 PM
IS: Chrysene-d12	99.9		0	50-200	0		%REC	10	08/09/16 04:27 PM
IS: Naphthalene-d8	118		0	50-200	0		%REC	10	08/09/16 04:27 PM
IS: Perylene-d12	107		0	50-200	0		%REC	10	08/09/16 04:27 PM
IS: Phenanthrene-d10	96.7		0	50-200	0		%REC	10	08/09/16 04:27 PM
Surr: 2-Fluorobiphenyl	81.1		0	46-115	0		%REC	10	08/09/16 04:27 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU176(0-2)-C
Project:	Laredo SGR	**Lab ID:**	1607317-35
Project No:	04285081.0000.00044	**Collection Date:**	07/27/16 03:22 PM
Lab Order:	1607317	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	80.1	0	58-133	0		%REC	10	08/09/16 04:27 PM

Qualifiers:	*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
	C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
	E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
	MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
	RL	Reporting Limit	S	Spike Recovery outside control limits
	N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *19-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU176(2-4)-C
Project:	Laredo SGR	**Lab ID:**	1607317-36
Project No:	04285081.0000.00044	**Collection Date:**	07/27/16 03:24 PM
Lab Order:	1607317	**Matrix:**	SOIL

Analyses	Result		DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID				**SW6020A**					Analyst: **CVD**
Lead	9.14	JH	0.0971	0.291	0.146		mg/Kg-dry	5	08/11/16 01:29 AM
IS: Bismuth	61.2		0	30-120	0		%REC	5	08/11/16 01:29 AM
PAHS: GC/MS				**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0735		0.0490	0.0980	0.0735	U	mg/Kg-dry	10	08/09/16 05:08 PM
Acenaphthylene	0.0735		0.0490	0.0980	0.0735	U	mg/Kg-dry	10	08/09/16 05:08 PM
Anthracene	0.0735		0.0490	0.0980	0.0735	U	mg/Kg-dry	10	08/09/16 05:08 PM
Benzo[a]anthracene	0.0735		0.0490	0.0980	0.0735	U	mg/Kg-dry	10	08/09/16 05:08 PM
Benzo[a]pyrene	0.0735		0.0490	0.0980	0.0735	U	mg/Kg-dry	10	08/09/16 05:08 PM
Benzo[b]fluoranthene	0.0735		0.0490	0.0980	0.0735	U	mg/Kg-dry	10	08/09/16 05:08 PM
Benzo[e]pyrene	0.0735		0.0490	0.0980	0.0735	U	mg/Kg-dry	10	08/09/16 05:08 PM
Benzo[g,h,i]perylene	0.0735		0.0490	0.0980	0.0735	U	mg/Kg-dry	10	08/09/16 05:08 PM
Benzo[j]fluoranthene	0.0735		0.0490	0.0980	0.0735	NU	mg/Kg-dry	10	08/09/16 05:08 PM
Benzo[k]fluoranthene	0.0735		0.0490	0.0980	0.0735	U	mg/Kg-dry	10	08/09/16 05:08 PM
Chrysene	0.0735		0.0490	0.0980	0.0735	U	mg/Kg-dry	10	08/09/16 05:08 PM
Dibenz[a,h]anthracene	0.0735		0.0490	0.0980	0.0735	U	mg/Kg-dry	10	08/09/16 05:08 PM
Fluoranthene	0.0735		0.0490	0.0980	0.0735	U	mg/Kg-dry	10	08/09/16 05:08 PM
Fluorene	0.0735		0.0490	0.0980	0.0735	U	mg/Kg-dry	10	08/09/16 05:08 PM
Indeno[1,2,3-cd]pyrene	0.0735		0.0490	0.0980	0.0735	U	mg/Kg-dry	10	08/09/16 05:08 PM
Phenanthrene	0.0735		0.0490	0.0980	0.0735	U	mg/Kg-dry	10	08/09/16 05:08 PM
Pyrene	0.0735		0.0490	0.0980	0.0735	U	mg/Kg-dry	10	08/09/16 05:08 PM
IS: Acenaphthene-d10	141		0	50-200	0		%REC	10	08/09/16 05:08 PM
IS: Chrysene-d12	101		0	50-200	0		%REC	10	08/09/16 05:08 PM
IS: Naphthalene-d8	118		0	50-200	0		%REC	10	08/09/16 05:08 PM
IS: Perylene-d12	108		0	50-200	0		%REC	10	08/09/16 05:08 PM
IS: Phenanthrene-d10	101		0	50-200	0		%REC	10	08/09/16 05:08 PM
Surr: 2-Fluorobiphenyl	78.4		0	46-115	0		%REC	10	08/09/16 05:08 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU176(2-4)-C
Project:	Laredo SGR	**Lab ID:**	1607317-36
Project No:	04285081.0000.00044	**Collection Date:**	07/27/16 03:24 PM
Lab Order:	1607317	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	72.8	0	58-133	0		%REC	10	08/09/16 05:08 PM

Qualifiers:	*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
	C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
	E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
	MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
	RL	Reporting Limit	S	Spike Recovery outside control limits
	N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *19-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU176(4-6)-C
Project:	Laredo SGR	**Lab ID:**	1607317-37
Project No:	04285081.0000.00044	**Collection Date:**	07/27/16 03:26 PM
Lab Order:	1607317	**Matrix:**	SOIL

Analyses	Result		DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID				**SW6020A**					Analyst: **CVD**
Lead	8.06	JH	0.0962	0.288	0.144		mg/Kg-dry	5	08/11/16 01:35 AM
IS: Bismuth	59.5		0	30-120	0		%REC	5	08/11/16 01:35 AM
PAHS: GC/MS				**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0740		0.0493	0.0986	0.0740	U	mg/Kg-dry	10	08/09/16 05:48 PM
Acenaphthylene	0.0740		0.0493	0.0986	0.0740	U	mg/Kg-dry	10	08/09/16 05:48 PM
Anthracene	0.0740		0.0493	0.0986	0.0740	U	mg/Kg-dry	10	08/09/16 05:48 PM
Benzo[a]anthracene	0.0740		0.0493	0.0986	0.0740	U	mg/Kg-dry	10	08/09/16 05:48 PM
Benzo[a]pyrene	0.0740		0.0493	0.0986	0.0740	U	mg/Kg-dry	10	08/09/16 05:48 PM
Benzo[b]fluoranthene	0.0740		0.0493	0.0986	0.0740	U	mg/Kg-dry	10	08/09/16 05:48 PM
Benzo[e]pyrene	0.0740		0.0493	0.0986	0.0740	U	mg/Kg-dry	10	08/09/16 05:48 PM
Benzo[g,h,i]perylene	0.0740		0.0493	0.0986	0.0740	U	mg/Kg-dry	10	08/09/16 05:48 PM
Benzo[j]fluoranthene	0.0740		0.0493	0.0986	0.0740	NU	mg/Kg-dry	10	08/09/16 05:48 PM
Benzo[k]fluoranthene	0.0740		0.0493	0.0986	0.0740	U	mg/Kg-dry	10	08/09/16 05:48 PM
Chrysene	0.0740		0.0493	0.0986	0.0740	U	mg/Kg-dry	10	08/09/16 05:48 PM
Dibenz[a,h]anthracene	0.0740		0.0493	0.0986	0.0740	U	mg/Kg-dry	10	08/09/16 05:48 PM
Fluoranthene	0.0740		0.0493	0.0986	0.0740	U	mg/Kg-dry	10	08/09/16 05:48 PM
Fluorene	0.0740		0.0493	0.0986	0.0740	U	mg/Kg-dry	10	08/09/16 05:48 PM
Indeno[1,2,3-cd]pyrene	0.0740		0.0493	0.0986	0.0740	U	mg/Kg-dry	10	08/09/16 05:48 PM
Phenanthrene	0.0740		0.0493	0.0986	0.0740	U	mg/Kg-dry	10	08/09/16 05:48 PM
Pyrene	0.0740		0.0493	0.0986	0.0740	U	mg/Kg-dry	10	08/09/16 05:48 PM
IS: Acenaphthene-d10	138		0	50-200	0		%REC	10	08/09/16 05:48 PM
IS: Chrysene-d12	94.5		0	50-200	0		%REC	10	08/09/16 05:48 PM
IS: Naphthalene-d8	116		0	50-200	0		%REC	10	08/09/16 05:48 PM
IS: Perylene-d12	103		0	50-200	0		%REC	10	08/09/16 05:48 PM
IS: Phenanthrene-d10	95.3		0	50-200	0		%REC	10	08/09/16 05:48 PM
Surr: 2-Fluorobiphenyl	80.7		0	46-115	0		%REC	10	08/09/16 05:48 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU176(4-6)-C
Project:	Laredo SGR	**Lab ID:**	1607317-37
Project No:	04285081.0000.00044	**Collection Date:**	07/27/16 03:26 PM
Lab Order:	1607317	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	74.3	0	58-133	0		%REC	10	08/09/16 05:48 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *19-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU176(6-8)-C
Project:	Laredo SGR	**Lab ID:**	1607317-38
Project No:	04285081.0000.00044	**Collection Date:**	07/27/16 03:28 PM
Lab Order:	1607317	**Matrix:**	SOIL

Analyses	Result		DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID				**SW6020A**					Analyst: **CVD**
Lead	6.50	JH	0.0962	0.288	0.144		mg/Kg-dry	5	08/11/16 01:40 AM
IS: Bismuth	64.6		0	30-120	0		%REC	5	08/11/16 01:40 AM
PAHS: GC/MS				**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0710		0.0473	0.0947	0.0710	U	mg/Kg-dry	10	08/09/16 06:27 PM
Acenaphthylene	0.0710		0.0473	0.0947	0.0710	U	mg/Kg-dry	10	08/09/16 06:27 PM
Anthracene	0.0710		0.0473	0.0947	0.0710	U	mg/Kg-dry	10	08/09/16 06:27 PM
Benzo[a]anthracene	0.0710		0.0473	0.0947	0.0710	U	mg/Kg-dry	10	08/09/16 06:27 PM
Benzo[a]pyrene	0.0710		0.0473	0.0947	0.0710	U	mg/Kg-dry	10	08/09/16 06:27 PM
Benzo[b]fluoranthene	0.0710		0.0473	0.0947	0.0710	U	mg/Kg-dry	10	08/09/16 06:27 PM
Benzo[e]pyrene	0.0710		0.0473	0.0947	0.0710	U	mg/Kg-dry	10	08/09/16 06:27 PM
Benzo[g,h,i]perylene	0.0710		0.0473	0.0947	0.0710	U	mg/Kg-dry	10	08/09/16 06:27 PM
Benzo[j]fluoranthene	0.0710		0.0473	0.0947	0.0710	NU	mg/Kg-dry	10	08/09/16 06:27 PM
Benzo[k]fluoranthene	0.0710		0.0473	0.0947	0.0710	U	mg/Kg-dry	10	08/09/16 06:27 PM
Chrysene	0.0710		0.0473	0.0947	0.0710	U	mg/Kg-dry	10	08/09/16 06:27 PM
Dibenz[a,h]anthracene	0.0710		0.0473	0.0947	0.0710	U	mg/Kg-dry	10	08/09/16 06:27 PM
Fluoranthene	0.0710		0.0473	0.0947	0.0710	U	mg/Kg-dry	10	08/09/16 06:27 PM
Fluorene	0.0710		0.0473	0.0947	0.0710	U	mg/Kg-dry	10	08/09/16 06:27 PM
Indeno[1,2,3-cd]pyrene	0.0710		0.0473	0.0947	0.0710	U	mg/Kg-dry	10	08/09/16 06:27 PM
Phenanthrene	0.0710		0.0473	0.0947	0.0710	U	mg/Kg-dry	10	08/09/16 06:27 PM
Pyrene	0.0710		0.0473	0.0947	0.0710	U	mg/Kg-dry	10	08/09/16 06:27 PM
IS: Acenaphthene-d10	139		0	50-200	0		%REC	10	08/09/16 06:27 PM
IS: Chrysene-d12	100		0	50-200	0		%REC	10	08/09/16 06:27 PM
IS: Naphthalene-d8	123		0	50-200	0		%REC	10	08/09/16 06:27 PM
IS: Perylene-d12	108		0	50-200	0		%REC	10	08/09/16 06:27 PM
IS: Phenanthrene-d10	94.6		0	50-200	0		%REC	10	08/09/16 06:27 PM
Surr: 2-Fluorobiphenyl	78.9		0	46-115	0		%REC	10	08/09/16 06:27 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU176(6-8)-C
Project:	Laredo SGR	**Lab ID:**	1607317-38
Project No:	04285081.0000.00044	**Collection Date:**	07/27/16 03:28 PM
Lab Order:	1607317	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	79.8	0	58-133	0		%REC	10	08/09/16 06:27 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	EB03(20160727)
Project:	Laredo SGR	**Lab ID:**	1607317-39
Project No:	04285081.0000.00044	**Collection Date:**	07/27/16 03:35 PM
Lab Order:	1607317	**Matrix:**	EQUIP BLANK

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER			**SW6020A**					Analyst: **RO**
Lead	0.000900	0.000300	0.00100	0.000900	U	mg/L	1	08/11/16 06:20 PM
IS: Bismuth	105	0	30-120	0		%REC	1	08/11/16 06:20 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Acenaphthene	0.0000787	0.0000492	0.0000983	0.0000787	U	mg/L	1	08/03/16 11:06 PM
Acenaphthylene	0.0000787	0.0000492	0.0000983	0.0000787	U	mg/L	1	08/03/16 11:06 PM
Anthracene	0.0000787	0.0000492	0.0000983	0.0000787	U	mg/L	1	08/03/16 11:06 PM
Benzo[a]anthracene	0.0000787	0.0000492	0.0000983	0.0000787	U	mg/L	1	08/03/16 11:06 PM
Benzo[a]pyrene	0.0000787	0.0000492	0.0000983	0.0000787	U	mg/L	1	08/03/16 11:06 PM
Benzo[b]fluoranthene	0.0000787	0.0000492	0.0000983	0.0000787	U	mg/L	1	08/03/16 11:06 PM
Benzo[e]pyrene	0.0000787	0.0000492	0.0000983	0.0000787	U	mg/L	1	08/03/16 11:06 PM
Benzo[g,h,i]perylene	0.0000787	0.0000492	0.0000983	0.0000787	U	mg/L	1	08/03/16 11:06 PM
Benzo[j]fluoranthene	0.0000787	0.0000492	0.0000983	0.0000787	NU	mg/L	1	08/03/16 11:06 PM
Benzo[k]fluoranthene	0.0000787	0.0000492	0.0000983	0.0000787	U	mg/L	1	08/03/16 11:06 PM
Chrysene	0.0000787	0.0000492	0.0000983	0.0000787	U	mg/L	1	08/03/16 11:06 PM
Dibenz[a,h]anthracene	0.0000787	0.0000492	0.0000983	0.0000787	U	mg/L	1	08/03/16 11:06 PM
Fluoranthene	0.0000787	0.0000492	0.0000983	0.0000787	U	mg/L	1	08/03/16 11:06 PM
Fluorene	0.0000787	0.0000492	0.0000983	0.0000787	U	mg/L	1	08/03/16 11:06 PM
Indeno[1,2,3-cd]pyrene	0.0000787	0.0000492	0.0000983	0.0000787	U	mg/L	1	08/03/16 11:06 PM
Phenanthrene	0.0000787	0.0000492	0.0000983	0.0000787	U	mg/L	1	08/03/16 11:06 PM
Pyrene	0.0000787	0.0000492	0.0000983	0.0000787	U	mg/L	1	08/03/16 11:06 PM
IS: Acenaphthene-d10	107	0	50-200	0		%REC	1	08/03/16 11:06 PM
IS: Chrysene-d12	92.7	0	50-200	0		%REC	1	08/03/16 11:06 PM
IS: Naphthalene-d8	94.7	0	50-200	0		%REC	1	08/03/16 11:06 PM
IS: Perylene-d12	93.4	0	50-200	0		%REC	1	08/03/16 11:06 PM
IS: Phenanthrene-d10	114	0	50-200	0		%REC	1	08/03/16 11:06 PM
Surr: 2-Fluorobiphenyl	75.0	0	53-106	0		%REC	1	08/03/16 11:06 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	EB03(20160727)
Project:	Laredo SGR	**Lab ID:**	1607317-39
Project No:	04285081.0000.00044	**Collection Date:**	07/27/16 03:35 PM
Lab Order:	1607317	**Matrix:**	EQUIP BLANK

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Surr: 4-Terphenyl-d14	61.3	0	58-132	0		%REC	1	08/03/16 11:06 PM

Qualifiers:	*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
	C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
	E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
	MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
	RL	Reporting Limit	S	Spike Recovery outside control limits
	N	Parameter not NELAC certified		

August 19, 2016

Alex Walter
Arcadis
8725 Rosehill #350
Lenexa, Kansas 66215
TEL: (913) 492-0900
FAX (913) 492-0902

Order No.: 1607317

RE: Laredo SGR

Dear Alex Walter:

DHL Analytical, Inc. received 39 sample(s) on 7/28/2016 for the analyses presented in the following report.

There were no problems with the analyses and all data met requirements of DoD QSM Ver 5 and NELAC except where noted in the Case Narrative. All non-NELAC methods will be identified accordingly in the case narrative and all estimated uncertainties of test results are within method or EPA specifications.

If you have any questions regarding these tests results, please feel free to call. This report shall not be reproduced except in full without the written approval of DHL Analytical, Inc. Thank you for using DHL Analytical.

Sincerely,

John DuPont
General Manager

This report was performed under the accreditation of the State of Texas & DoD Laboratory Certification Number: T104704211-16-16 & DoD-ELAP #L15-426

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DHL ANALYTICAL
2300 Double Creek Dr. ■ Round Rock, TX 78664
Phone (512) 388-8222 ■ FAX (512) 388-8229
Web: www.dhlanalytical.com
E-Mail: login@dhlanalytical.com

Nº 72226 CHAIN-OF-CUSTODY

CLIENT: ARCADIS
ADDRESS: 8225 Rosehill Suite 350 Lenexa, KS 66215
PHONE: 913-492-0900 FAX/E-MAIL: Alex.Walter@arcadis.com
DATA REPORTED TO: Alex Walter
ADDITIONAL REPORT COPIES TO:

DATE: 7-27-16 PAGE 1 OF 3
PO #: 04285081.0000.00044 DHL WORK ORDER #: 1607317
PROJECT LOCATION OR NAME: Laredo SGR
CLENT PROJECT #: 04285081.0000.00044 COLLECTOR: Jordan Boem

Authorize 5% surcharge for TRRP Report? ☐ Yes ☐ No

S=SOIL W=WATER A=AIR L=LIQUID SE=SEDIMENT P=PAINT SL=SLUDGE O=OTHER SO=SOLID

Field Sample I.D.	DHL Lab #	Date	Time	Matrix	Container Type	# of Containers	PRESERVATION: HCl	HNO_3	H_2SO_4 ☐ NaOH ☐	ICE	UNPRESERVED	ANALYSES	FIELD NOTES
SGR-DU156(0-2)-A	01	7-27-16	1015	S	Bag	1				X		X	
SGR-DU156(2-4)-A	02	7-27-16	1017	S	Bag	1				X		X	
SGR-DU156(4-6)-A	03	7-27-16	1019	S	Bag	1				X		X	
SGR-DU156(6-8)-A	04	7-27-16	1021	S	Bag	1				X		X	
SGR-DU156(0-2)-B	05	7-27-16	1024	S	Bag	1				X		X	
SGR-DU156(2-4)-B	06	7-27-16	1026	S	Bag	1				X		X	
SGR-DU156(4-6)-B	07	7-27-16	1028	S	Bag	1				X		X	
SGR-DU156(6-8)-B	08	7-27-16	1030	S	Bag	1				X		X	
SGR-DU156(0-2)-C	09	7-27-16	1033	S	Bag	1				X		X	
SGR-DU156(2-4)-C	10	7-27-16	1035	S	Bag	1				X		X	
SGR-DU156(4-6)-C	11	7-27-16	1037	S	Bag	1				X		X	
SGR-DU156(6-8)-C	12	7-27-16	1039	S	Bag	1				X		X	
EB01(20160727)	13	7-27-16	1045	W	Poly/Glass	2		X		X		X	

ANALYSES: BTEX ☐ MTBE ☐ [METHOD 8021] TPH 1005 ☐ TPH 1006 ☐ HOLD 1006 ☐ GRO [METHOD 8015] ☐ DRO [METHOD 8105] ☐ VOC 8260 ☐ VOC 624 ☐ VOC 8260/5035 ☐ SVOC 8270 ☐ PAH 8270 ☐ HOLD PAH ☐ SVOC 625 ☐ 8270 PEST ☐ 625 PEST/PCB ☐ 608 PCB ☐ 8270 O-P PEST ☐ 8082 PCB ☐ 8270 PCB ☐ 8321 HERB ☐ T PHOS, AMMONIA ☐ METALS 6020 ☐ METALS 200.8 ☐ DISS. METALS ☐ RCRA ☐ TX11 ☐ Lead PH ☐ HEX CHROM ☐ ALKALINITY ☐ COD ☐ CHLORIDE ☐ ANIONS ☐ TCLP-SVOC ☐ VOC ☐ PEST ☐ HERB ☐ TCLP-METALS ☐ RCRA 8 ☐ TX-11 ☐ Pb ☐ RCI ☐ FLASHPOINT ☐ DGAS ☐ TDS ☐ TSS ☐ % MOISTURE ☐ CYANIDE ☐

RELINQUISHED BY: (Signature) Jordan Boem DATE/TIME 7-27-16 / 1630 RECEIVED BY: (Signature) Fedex
RELINQUISHED BY: (Signature) Fedex DATE/TIME 7/28/16 RECEIVED BY: (Signature)
RELINQUISHED BY: (Signature) DATE/TIME RECEIVED BY: (Signature)

☐ DHL DISPOSAL @ $5.00 each ☐ Return

TURN AROUND TIME
RUSH ☐ CALL FIRST
1 DAY ☐ CALL FIRST
2 DAY ☐
NORMAL ☐
OTHER ☐ _____

LABORATORY USE ONLY:
RECEIVING TEMP: _____ THERM #: 798
CUSTODY SEALS: ☐ BROKEN ☒ INTACT ☐ NOT USED
CARRIER: ☐ LONE STAR ☒ FEDEX ☐ UPS ☐ OTHER
☐ COURIER DELIVERY 1.3 | 0.5 | 0.4 | 2.8
☐ HAND DELIVERED 0.3 | 0.4

DHL ANALYTICAL
2300 Double Creek Dr. ■ Round Rock, TX 78664
Phone (512) 388-8222 ■ FAX (512) 388-8229
Web: www.dhlanalytical.com
E-Mail: login@dhlanalytical.com

№ 72227

CHAIN-OF-CUSTODY

CLIENT: ARCADIS
ADDRESS: 8725 Rosehill Suite 350 Lenexa, KS 66215
PHONE: 913-492-0900 FAX/E-MAIL: Alex.Walter@arcadis.com
DATA REPORTED TO: Alex Walter
ADDITIONAL REPORT COPIES TO:

DATE: 7-27-16 PAGE 2 OF 2
PO #: 04285081.0000.00044 DHL WORK ORDER #: 1L0707317
PROJECT LOCATION OR NAME: Laredo SGR
CLENT PROJECT #: 04285081.0000.00044 COLLECTOR: Jordan Beem

Authorize 5% surcharge for TRRP Report? ❑ Yes ❑ No

S=SOIL P=PAINT
W=WATER SL=SLUDGE
A=AIR O=OTHER
L=LIQUID SO=SOLID
SE=SEDIMENT

Field Sample I.D.	DHL Lab #	Date	Time	Matrix	Container Type	# of Containers	PRESERVATION: HCl	HNO_3	H_2SO_4 ❑ NaOH ❑	ICE	UNPRESERVED	ANALYSES: BTEX ❑ MTBE ❑ [METHOD 8021]	TPH 1005 ❑ TPH 1006 ❑ HOLD 1006 ❑	GRO [METHOD 8015] ❑ DRO [METHOD 8105] ❑	VOC 8260 ❑ VOC 624 ❑ VOC 8260/5035 ❑	SVOC 8270 ❑ PAH 8270 ❑ HOLD PAH ❑ SVOC 625 ❑	8270 PEST ❑ 625 PEST/PCB ❑ 608 PCB ❑	8270 O-P PEST ❑ 8082 PCB ❑ 8270 PCB ❑	8321 HERB ❑ T PHOS, AMMONIA ❑	METALS 6020 ❑ METALS 200.8 ❑ DISS. METALS ❑	RCRA ❑ TX11 ❑ Lead	PH ❑ HEX CHROM ❑ ALKALINITY ❑ COD ❑	CHLORIDE ❑ ANIONS ❑	TCLP-SVOC ❑ VOC ❑ PEST ❑ HERB ❑	TCLP-METALS ❑ RCRA 8 ❑ TX-11 ❑ Pb ❑	RCI ❑ FLASHPOINT ❑ DGAS ❑	TDS ❑ TSS ❑ % MOISTURE ❑ CYANIDE ❑	FIELD NOTES
SGR-DU080(0-2)-A	14	7-27-16	1244	S	Bag	1				X					X						X								
SGR-DU080(2-4)-A	15	7-27-16	1246	S	Bag	1				X					X						X								
SGR-DU080(4-6)-A	16	7-27-16	1248	S	Bag	1				X					X						X								
SGR-DU080(6-8)-A	17	7-27-16	1250	S	Bag	1				X					X						X								
SGR-DU080(0-2)-B	18	7-27-16	1252	S	Bag	1				X					X						X								
SGR-DU080(2-4)-B	19	7-27-16	1254	S	Bag	1				X					X						X								
SGR-DU080(4-6)-B	20	7-27-16	1256	S	Bag	1				X					X						X								
SGR-DU080(6-8)-B	21	7-27-16	1258	S	Bag	1				X					X						X								
SGR-DU080(0-2)-C	22	7-27-16	1300	S	Bag	1				X					X						X								
SGR-DU080(2-4)-C	23	7-27-16	1302	S	Bag	1				X					X						X								
SGR-DU080(4-6)-C	24	7-27-16	1304	S	Bag	1				X					X						X								
SGR-DU080(6-8)-C	25	7-27-16	1306	S	Bag	1				X					X						X								
EB02(20160727)	26	7-27-16	1310	W	Poly/Glass	2		X		X					X						X								

RELINQUISHED BY: (Signature) Jordan Beem DATE/TIME 7-27-16/1630 RECEIVED BY: (Signature) FedEx
RELINQUISHED BY: (Signature) FedEx DATE/TIME 7/28/16 10:00 RECEIVED BY: (Signature)
RELINQUISHED BY: (Signature) DATE/TIME RECEIVED BY: (Signature)

❑ DHL DISPOSAL @ $5.00 each ❑ Return

TURN AROUND TIME
RUSH ❑ CALL FIRST
1 DAY ❑ CALL FIRST
2 DAY ❑
NORMAL ❑
OTHER ❑ _____

LABORATORY USE ONLY:
RECEIVING TEMP: 1.3 THERM #: 78
CUSTODY SEALS: ❑ BROKEN ☒ INTACT ❑ NOT USED
CARRIER: ❑ LONE STAR ☒ FEDEX ❑ UPS ❑ OTHER
❑ COURIER DELIVERY 0.5 | 0.6 | 2.8 | 0.3 | 0.6
❑ HAND DELIVERED

DHL ANALYTICAL
2300 Double Creek Dr. ■ Round Rock, TX 78664
Phone (512) 388-8222 ■ FAX (512) 388-8229
Web: www.dhlanalytical.com
E-Mail: login@dhlanalytical.com

№ 72225

CHAIN-OF-CUSTODY

CLIENT: ARCADIS
ADDRESS: 8725 Rosehill Suite 350 Lenexa, KS 66215
PHONE: 913-492-0900 FAX/E-MAIL: Alex.Walter@arcadis.com
DATA REPORTED TO: Alex Walter
ADDITIONAL REPORT COPIES TO:

DATE: 7-27-16 PAGE 3 OF 3
PO #: 04285081.0000.00044 DHL WORK ORDER #: 1160731?
PROJECT LOCATION OR NAME: Laredo SGR
CLENT PROJECT #: 04285081.0000.00044 COLLECTOR: Jordon Beem

Authorize 5% surcharge for TRRP Report? ☐ Yes ☐ No

S=SOIL W=WATER A=AIR L=LIQUID SE=SEDIMENT P=PAINT SL=SLUDGE O=OTHER SO=SOLID

PRESERVATION: HCl | HNO_3 | H_2SO_4 ☐ NaOH ☐ | ICE | UNPRESERVED

ANALYSES: BTEX ☐ MTBE ☐ [METHOD 8021] | TPH 1005 ☐ TPH 1006 ☐ HOLD 1006 ☐ | GRO [METHOD 8015] ☐ DRO [METHOD 8105] ☐ | VOC 8260 ☐ VOC 624 ☐ VOC 8260/5035 ☐ | SVOC 8270 ☐ PAH 8270 ☐ HOLD PAH ☐ SVOC 625 ☐ | 8270 PEST ☐ 625 PEST/PCB ☐ 8082 PCB ☐ 608 PCB ☐ | 8270 O-P PEST ☐ 8082 PCB ☐ 8270 PCB ☐ | 8321 HERB ☐ T PHOS, AMMONIA ☐ | METALS 6020 ☐ METALS 200.8 ☐ DISS. METALS ☐ # | RCRA ☐ TX11 ☐ Lead | PH ☐ HEX CHROM ☐ ALKALINITY ☐ COD ☐ | CHLORIDE ☐ ANIONS ☐ | TCLP-SVOC ☐ VOC ☐ PEST ☐ HERB ☐ | TCLP-METALS ☐ RCRA 8 ☐ TX-11 ☐ Pb ☐ | RCI ☐ FLASHPOINT ☐ DGAS ☐ | TDS ☐ TSS ☐ % MOISTURE ☐ CYANIDE ☐

Field Sample I.D.	DHL Lab #	Date	Time	Matrix	Container Type	# of Containers	HCl	HNO_3	H_2SO_4 ☐ NaOH ☐	ICE	UNPRESERVED	ANALYSES	FIELD NOTES
SGR-DU176(0-2)-A	27	7-27-16	1500	S	Bag	1				X		X X X	
SGR-DU176(2-4)-A	28	7-27-16	1502	S	Bag	1				X		X X X	
SGR-DU176(4-6)-A	29	7-27-16	1504	S	Bag	1				X		X X X	
SGR-DU176(6-8)-A	30	7-27-16	1506	S	Bag	1				X		X X X	
SGR-DU176(0-2)-B	31	7-27-16	1515	S	Bag	1				X		X X X	
SGR-DU176(2-4)-B	32	7-27-16	1517	S	Bag	1				X		X X X	
SGR-DU176(4-6)-B	33	7-27-16	1519	S	Bag	1				X		X X X	
SGR-DU176(6-8)-B	34	7-27-16	1521	S	Bag	1				X		X X X	
SGR-DU176(0-2)-C	25	7-27-16	1522	S	Bag	1				X		X X X	
SGR-DU176(2-4)-C	36	7-27-16	1524	S	Bag	1				X		X X X	
SGR-DU176(4-6)-C	37	7-27-16	1526	S	Bag	1				X		X X X	
SGR-DU176(6-8)-C	38	7-27-16	1528	S	Bag	1				X		X X X	
EB03(20160727)	39	7-27-16	1535	W	Poly/Glass	2		X		X		X X X	

RELINQUISHED BY: (Signature) Jordon Beem DATE/TIME 7-27-16 / 1650 RECEIVED BY: (Signature) Fedex
RELINQUISHED BY: (Signature) Fedex DATE/TIME 7/28/16 10:00 RECEIVED BY: (Signature)
RELINQUISHED BY: (Signature) DATE/TIME RECEIVED BY: (Signature)

☐ DHL DISPOSAL @ $5.00 each ☐ Return

TURN AROUND TIME
RUSH ☐ CALL FIRST
1 DAY ☐ CALL FIRST
2 DAY ☐
NORMAL ☐
OTHER ☐ _____

LABORATORY USE ONLY:
RECEIVING TEMP: 1.2 THERM #: 78
CUSTODY SEALS: ☐ BROKEN ☒ INTACT ☐ NOT USED
CARRIER: ☐ LONE STAR ☒ FEDEX ☐ UPS ☐ OTHER
☐ COURIER DELIVERY 0.5|0.6|2.8|0.2|0.6
☐ HAND DELIVERED

SAMPLE RECEIVING
DHL ANALYTICAL
2300 DOUBLE CREEK DR

ROUND ROCK TX 78664
(512) 388-8222 REF:
INV:
PO: DEPT:

RT 512 FZ

REL# 3785346

3 of 6
MPS# 0283 7836 8297 1514
Mstr# 7836 8297 1499 0201

THU - 28 JUL 10:30A
PRIORITY OVERNIGHT

44 BSMA

78664
TX-US AUS

CUSTODY SEAL
DATE 7-27-16
SIGNATURE Jordan Beam

QEC
Quality Environmental Containers
800-255-3950 • 304-255-3900

LENEXA, KS 66215
UNITED STATES US

FZ

1547
07.28

TO SAMPLE RECEIVING
DHL ANALYTICAL
2300 DOUBLE CREEK DR

ROUND ROCK TX 78664
(512) 388-8222 REF:
INV:
PO: DEPT:

FedEx Express

REL# 3785346

6 of 6
MPS# 0283 7836 8297 1547
Mstr# 7836 8297 1499 0201

THU - 28 JUL 10:30A
PRIORITY OVERNIGHT

44 BSMA

78664
TX-US AUS

CUSTODY SEAL
DATE 7-27-16
SIGNATURE Jordan Beam

QEC
Quality Environmental Containers
800-255-3950 • 304-255-3900

ORIGIN ID:LRDA (913) 492-0900
PN:042850810000000044
ARCADIS
8725 ROSEHILL
STE 350
LENEXA, KS 66215
UNITED STATES US

SHIP DATE: 27JUL16
ACTWGT: 60.90 LB
CAD: 006994464/SSFE1704
DIMS: 19x13x13 IN

BILL THIRD PARTY

TO SAMPLE RECEIVING
DHL ANALYTICAL
2300 DOUBLE CREEK DR

ROUND ROCK TX 78664
(512) 388-8222 REF:
INV: PO: DEPT:

FedEx Express

REL# 3785346

1 of 6
TRK# 0201 7836 8297 1499
MASTER

THU - 28 JUL 10:30A
PRIORITY OVERNIGHT

44 BSMA

78664
TX-US AUS

CUSTODY SEAL
DATE 7-27-16
SIGNATURE Jordan Beam

QEC
Quality Environmental Containers
800-255-3950 • 304-255-3900

TO SAMPLE RECEIVING
DHL ANALYTICAL
2300 DOUBLE CREEK DR

ROUND ROCK TX 78664
(512) 388-8222 REF:
INV: PO: DEPT:

FedEx Express

REL# 3785346

4 of 6
MPS# 0263 7836 8297 1525
Mstr# 7836 8297 1499

THU - 28 JUL 10:30A
PRIORITY OVERNIGHT

0201

44 BSMA

78664
TX-US AUS

CUSTODY SEAL
DATE 7-27-16
SIGNATURE Jordan Beam

QEC
Quality Environmental Containers
800-255-3950 • 304-255-3900

DHL ANALYTICAL
2300 DOUBLE CREEK DR

ROUND ROCK TX 78664
(612) 388-8222 REF:
INV:
PO: DEPT:

FedEx Express

REL# 3765346

2 of 6
MPS# 0263 7836 8297 1503
Mstr# 7836 8297 1499 0201

THU - 28 JUL 10:30A
PRIORITY OVERNIGHT

44 BSMA

78664
TX-US AUS

CUSTODY SEAL
DATE 7.27.16
SIGNATURE Jordan Baum

QEC
Quality Environmental Containers
800-255-3950 • 304-255-3900

TO SAMPLE RECEIVING
DHL ANALYTICAL
2300 DOUBLE CREEK DR

ROUND ROCK TX 78664
(612) 388-8222 REF:
INV:
PO: DEPT:

FedEx Express

REL# 3765346

5 of 6
MPS# 0263 7836 8297 1536
Mstr# 7836 8297 1499 0201

THU - 28 JUL 10:30A
PRIORITY OVERNIGHT

44 BSMA

78664
TX-US AUS

SEAL
7.27.16
Jordan Baum

QEC
Quality Environmental Containers
800-255-3950 • 304-255-3900

DHL Analytical, Inc.

Sample Receipt Checklist

Client Name **Arcadis** Date Received: **7/28/2016**

Work Order Number **1607317** Received by **JT**

Checklist completed by: _____ 7/28/2016 Reviewed by DL 7/28/2016
Signature Date Initials Date

Carrier name FedEx 1day

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shippping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	2.8 °C |1.3|0.5|0.6|0.3|0.6
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH<2 acceptable upon receipt?	Yes ☑	No ☐	NA ☐ LOT # 8086
	Adjusted? NO		Checked by JT
Water - ph>9 (S) or ph>12 (CN) acceptable upon receipt?	Yes ☐	No ☐	NA ☑ LOT #
	Adjusted? _____		Checked by _____

Any No response must be detailed in the comments section below.

Client contacted _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding: _____

Comments: _____

Corrective Action _____

Page 1 of 1

DHL Analytical, Inc.
Laboratory Review Checklist: Reportable Data

Project Name: Laredo SGR	**Date:** 8/19/2016
Reviewer Name: Angie O'Donnell	**Laboratory Work Order:** 1607317
Prep Batch Number(s): See Prep Dates Report	**Run Batch:** See Analytical Dates Report

#[1]	A[2]	Description	Yes	No	NA[3]	NR[4]	ER#[5]
		Chain-of-Custody (C-O-C)					
R1	OI	**1)** Did samples meet the laboratory's standard conditions of sample acceptability upon receipt?	**X**				**R1-01**
		2) Were all departures from standard conditions described in an exception report?			**X**		
R2	OI	**Sample and Quality Control (QC) Identification**					
		1) Are all field sample ID numbers cross-referenced to the laboratory ID numbers?	**X**				
		2) Are all laboratory ID numbers cross-referenced to the corresponding QC data?	**X**				
R3	OI	**Test Reports**					
		1) Were all samples prepared and analyzed within holding times?	**X**				
		2) Other than those results < MQL, were all other raw values bracketed by calibration standards?	**X**				
		3) Were calculations checked by a peer or supervisor?	**X**				
		4) Were all analyte identifications checked by a peer or supervisor?	**X**				
		5) Were sample detection limits reported for all analytes not detected?	**X**				
		6) Were all results for soil and sediment samples reported on a dry weight basis?	**X**				
		7) Were % moisture (or solids) reported for all soil and sediment samples?	**X**				
		8) Were bulk soils/solids samples for volatile analysis extracted with methanol per EPA Method 5035?			**X**		
		9) If required for the project, TICs reported?			**X**		
R4	O	**Surrogate Recovery Data**					
		1) Were surrogates added prior to extraction?	**X**				
		2) Were surrogate percent recoveries in all samples within the laboratory QC limits?	**X**				
R5	OI	**Test Reports/Summary Forms for Blank Samples**					
		1) Were appropriate type(s) of blanks analyzed?	**X**				
		2) Were blanks analyzed at the appropriate frequency?	**X**				
		3) Where method blanks taken through the entire analytical process, including preparation and, if applicable, cleanup procedures?	**X**				
		4) Were blank concentrations < MQL?	**X**				
R6	OI	**Laboratory Control Samples (LCS):**					
		1) Were all COCs included in the LCS?	**X**				
		2) Was each LCS taken through the entire analytical procedure, including prep and cleanup steps?	**X**				
		3) Were LCSs analyzed at the required frequency?	**X**				
		4) Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits?	**X**				
		5) Does the detectability data document the laboratory's capability to detect the COCs at the MDL used to calculate the SDLs?	**X**				
		6) Was the LCSD RPD within QC limits (if applicable)?	**X**				
R7	OI	**Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Data**					
		1) Were the project/method specified analytes included in the MS and MSD?	**X**				
		2) Were MS/MSD analyzed at the appropriate frequency?	**X**				**R7-02**
		3) Were MS (and MSD, if applicable) %Rs within the laboratory QC limits?		**X**			**R7-03**
		4) Were MS/MSD RPDs within laboratory QC limits?	**X**				
R8	OI	**Analytical Duplicate Data**					
		1) Were appropriate analytical duplicates analyzed for each matrix?			**X**		
		2) Were analytical duplicates analyzed at the appropriate frequency?			**X**		
		3) Were RPDs or relative standard deviations within the laboratory QC limits?			**X**		
R9	OI	**Method Quantitation Limits (MQLs):**					
		1) Are the MQLs for each method analyte included in the laboratory data package?	**X**				
		2) Do the MQLs correspond to the concentration of the lowest non-zero calibration standard?	**X**				
		3) Are unadjusted MQLs and DCSs included in the laboratory data package?	**X**				
R10	OI	**Other Problems/Anomalies**					
		1) Are all known problems/anomalies/special conditions noted in this LRC and ER?	**X**				**R10-01**
		2) Was applicable and available technology used to lower the SDL to minimize the matrix interference affects on the sample results?	**X**				
		3) Is the laboratory NELAC-accredited under the Texas Laboratory Accreditation Program for the analytes, matrices and methods associated with this laboratory data package?	**X**				

1 Items identified by the letter "R" should be included in the laboratory data package submitted to the TCEQ in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.
2 O = organic analyses; I = inorganic analyses (and general chemistry, when applicable).
3 NA = Not applicable.
4 NR = Not Reviewed.
5 ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

DHL Analytical, Inc.
Laboratory Review Checklist (continued): Supporting Data

Project Name: Laredo SGR	**Date:** 8/19/2016
Reviewer Name: Angie O'Donnell	**Laboratory Work Order:** 1607317

#[1]	A[2]	Description	Yes	No	NA[3]	NR[4]	ER#[5]
S1	OI	**Initial Calibration (ICAL)**					
		1) Were response factors and/or relative response factors for each analyte within QC limits?	X				
		2) Were percent RSDs or correlation coefficient criteria met?	X				
		3) Was the number of standards recommended in the method used for all analytes?	X				
		4) Were all points generated between the lowest and highest standard used to calculate the curve?	X				
		5) Are ICAL data available for all instruments used?	X				
		6) Has the initial calibration curve been verified using an appropriate second source standard?	X				
S2	OI	**Initial and Continuing calibration Verification (ICCV and CCV) and Continuing Calibration blank (CCB):**					
		1) Was the CCV analyzed at the method-required frequency?	X				
		2) Were percent differences for each analyte within the method-required QC limits?	X				
		3) Was the ICAL curve verified for each analyte?	X				
		4) Was the absolute value of the analyte concentration in the inorganic CCB < MDL?	X				
S3	O	**Mass Spectral Tuning:**					
		1) Was the appropriate compound for the method used for tuning?	X				
		2) Were ion abundance data within the method-required QC limits?	X				
S4	O	**Internal Standards (IS):**					
		1) Were IS area counts and retention times within the method-required QC limits?	X				
S5	OI	**Raw Data (NELAC Section 5.5.10)**					
		1) Were the raw data (for example, chromatograms, spectral data) reviewed by an analyst?	X				
		2) Were data associated with manual integrations flagged on the raw data?	X				
S6	O	**Dual Column Confirmation**					
		1) Did dual column confirmation results meet the method-required QC?			X		
S7	O	**Tentatively Identified Compounds (TICs):**					
		1) If TICs were requested, were the mass spectra and TIC data subject to appropriate checks?			X		
S8	I	**Interference Check Sample (ICS) Results:**					
		1) Were percent recoveries within method QC limits?	X				
S9	I	**Serial Dilutions, Post Digestion Spikes, and Method of Standard Additions**					
		1) Were percent differences, recoveries, and the linearity within the QC limits specified in the method?	X				
S10	OI	**Method Detection Limit (MDL) Studies**					
		1) Was a MDL study performed for each reported analyte?	X				
		2) Is the MDL either adjusted or supported by the analysis of DCSs?	X				
S11	OI	**Proficiency Test Reports:**					
		1) Was the lab's performance acceptable on the applicable proficiency tests or evaluation studies?	X				
S12	OI	**Standards Documentation**					
		1) Are all standards used in the analyses NIST-traceable or obtained from other appropriate sources?	X				
S13	OI	**Compound/Analyte Identification Procedures**					
		1) Are the procedures for compound/analyte identification documented?	X				
S14	OI	**Demonstration of Analyst Competency (DOC)**					
		1) Was DOC conducted consistent with NELAC Chapter 5 – Appendix C?	X				
		2) Is documentation of the analyst's competency up-to-date and on file?	X				
S15	OI	**Verification/Validation Documentation for Methods** (NELAC Chapter 5)					
		1) Are all the methods used to generate the data documented, verified, and validated, where applicable?	X				
S16	OI	**Laboratory Standard Operating Procedures (SOPs):**					
		1) Are laboratory SOPs current and on file for each method performed?	X				

1 Items identified by the letter "R" should be included in the laboratory data package submitted to the TCEQ in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.
2 O = organic analyses; I = inorganic analyses (and general chemistry, when applicable).
3 NA = Not applicable.
4 NR = Not Reviewed.
5 ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

Laboratory Data Package Signature Page – RG-366/TRRP-13

This data package consists of:

This signature page, the laboratory review checklist, and the following reportable data:

R1 Field chain-of-custody documentation;
R2 Sample identification cross-reference;
R3 Test reports (analytical data sheets) for each environmental sample that includes:
  a) Items consistent with NELAC Chapter 5,
  b) dilution factors,
  c) preparation methods,
  d) cleanup methods, and
  e) if required for the project, tentatively identified compounds (TICs).
R4 Surrogate recovery data including:
  a) Calculated recovery (%R), and
  b) The laboratory's surrogate QC limits.
R5 Test reports/summary forms for blank samples;
R6 Test reports/summary forms for laboratory control samples (LCSs) including:
  a) LCS spiking amounts,
  b) Calculated %R for each analyte, and
  c) The laboratory's LCS QC limits.
R7 Test reports for project matrix spike/matrix spike duplicates (MS/MSDs) including:
  a) Samples associated with the MS/MSD clearly identified,
  b) MS/MSD spiking amounts,
  c) Concentration of each MS/MSD analyte measured in the parent and spiked samples,
  d) Calculated %Rs and relative percent differences (RPDs), and
  e) The laboratory's MS/MSD QC limits
R8 Laboratory analytical duplicate (if applicable) recovery and precision:
  a) The amount of analyte measured in the duplicate,
  b) The calculated RPD, and
  c) The laboratory's QC limits for analytical duplicates.
R9 List of method quantitation limits (MQLs) and detectability check sample results for each analyte for each method and matrix;
R10 Other problems or anomalies.

The Exception Report for every "No" or "Not Reviewed (NR)" item in Laboratory Review checklist and for each analyte, matrix, and method for which the laboratory does not hold NELAC accreditation under the Texas Laboratory Accreditation Program.

Release Statement: I am responsible for the release of this laboratory data package. This laboratory is NELAC accredited under the Texas Laboratory Accreditation Program for all the methods, analytes, and matrices reported in this data package except as noted in the Exception Reports. The data have been reviewed and are technically compliant with the requirements of the methods used, except where noted by the laboratory in the Exception Reports. By my signature below, I affirm to the best of my knowledge that all problems/anomalies observed by the laboratory have been identified in the Laboratory Review Checklist, and no information or data affecting the quality of the data has been knowingly withheld.

This laboratory was last inspected by TCEQ on June 1-5, 2015. Any findings affecting the data in this laboratory data package are noted in the Exception Reports herein. The official signing the cover page of the report in which these data are used is responsible for releasing this data package and is by signature affirming the above release statement is true.

John DuPont – General Manager

Scott Schroeder – Technical Director



Signature

08/20/16

Date

CLIENT: Arcadis
Project: Laredo SGR
Lab Order: 1607317

CASE NARRATIVE

This case narrative describes abnormalities and deviations that may affect the results and summarizes all known issues that need to be highlighted for the data user to assess the results. This case narrative and the report contents are compliant with DoD QSM Ver. 5.0 and NELAC.

The "U" flag indicates the results for that sample are nondetect.

Samples were analyzed using the methods outlined in the following references:

Method SW8270D-LL - PAH Analysis (The compound Benzo[j]fluoranthene is not NELAC or DOD Certified)
Method SW6020A- Metals Analysis

Exception Report R1-01

Samples were received on and log-in performed on 7/28/2016. A total of 39 samples were received and analyzed. The samples arrived in good condition and were properly packaged.

Exception Report R7-02

For PAH Analysis, for Batch 76564, an MS/MSD is not required for Equipment Blank matrices. An LCS was performed as Batch QC.

Exception Report R7-03

For Metals Analysis, for soil Batches 76716 and 76717, the recovery of Lead for the Matrix Spike and Matrix Spike Duplicate (1607317-09, -27 MS/MSD) was above the method control limits. These are flagged accordingly in the QC Summary Report. This analyte was within method control limits in the associated LCS(s). No further corrective action was taken.

Exception Report R10-01

For PAH Analysis, the soil samples were diluted due to observed color of extract; dilution meets project specifications.

For Metals Analysis, for Batch 76687, the Serial Dilution was mis-prepared which yielded unusable data and will not be reported. The associated samples were Equipment Blanks and were nondetect for the target analyte, Lead. The associated Post Digestion Spike was within method control limits and will be reported as Batch QC. Client was informed and no further corrective action was taken.

CLIENT:	Arcadis
Project:	Laredo SGR
Lab Order:	1607317

CASE NARRATIVE

For all of the samples, with the exception of nine, in this project, DHL Analytical performed an Incremental Sampling Method (ISM) according to an internal SOP, as approved by the client and included in the project QAPP. Nine subsurface samples had insufficient sample volume to perform the sub-sampling procedure as stated in the SOP and the entire sieved sample mass was used for the analysis. All of the soil samples in this workorder consist of the following sample types: subsurface soil samples processed to pass a #10 sieve (2mm).

A summary of project communication follows:

The Subcontract Agreement No. D16-003 for Arcadis Project No. 04285081.0000.00043 was sent to DHL Analytical from client and signed on 1/6/2016, the contract for work signed and approved by both parties on 1/12/2016. A Modification No. 01-D16-003 was signed by both parties on 4/21/2016.

The bottle kit was requested from Alex Walter of Arcadis sent via email to John DuPont on 7/5/2016. The following DHL Bottle Orders:
#7161 sent on 7/14/2016 via Lonestar Overnight Ground to arrive by 7/15/2016.
#7162 sent on 7/18/2016 via Lonestar Overnight Ground to arrive by 7/19/2016.
#7163 sent on 7/20/2016 via Lonestar Overnight Ground to arrive by 7/21/2016.
#7164 sent on 7/22/2016 via Lonestar Overnight Ground to arrive by 7/25/2016.
#7196 sent on 7/22/2016 via Lonestar Overnight Ground to arrive by 7/25/2016.

This sample delivery group arrives at DHL Analytical on and the Sample Summary was sent on 7/28/2016. Associated shipping documents are kept in the project folder and/or client folder as part of the Administrative records filed in the QA office.

DHL project manager/qa staff discussed with client the following issues:
email communications 8/5/2016 - from J. DuPont to the Arcadis Kansas Laredo email group regarding misdirected cooler by FedEx, surrogate(s) below control limits for some samples and QC samples and compounds outside of the control limits for ICV(s). The client accepted the corrective action for the quality variances on 8/8/2016.
email communications 8/10/2016 - from J. DuPont to the Arcadis Kansas Laredo email group regarding request mis-prepared Serial Dilution for Batch 76687 and surrogate(s) below control limits for some samples and QC samples. The client accepted the corrective action for the quality variances on 8/10/2016.
email communications 8/12/2016 - from J. DuPont to the Arcadis Kansas Laredo email group regarding PAH and Lead analysis outside of the method control limits for the MS/MSD(s). The client accepted the corrective action for the quality variances on 8/12/2016.

DHL Analytical, Inc.

Date: *19-Aug-16*

CLIENT: Arcadis
Project: Laredo SGR
Lab Order: 1607317

Work Order Sample Summary

Lab Smp ID	Client Sample ID	Tag Number	Date Collected	Date Recved
1607317-01	SGR-DU156(0-2)-A		07/27/16 10:15 AM	7/28/2016
1607317-02	SGR-DU156(2-4)-A		07/27/16 10:17 AM	7/28/2016
1607317-03	SGR-DU156(4-6)-A		07/27/16 10:19 AM	7/28/2016
1607317-04	SGR-DU156(6-8)-A		07/27/16 10:21 AM	7/28/2016
1607317-05	SGR-DU156(0-2)-B		07/27/16 10:24 AM	7/28/2016
1607317-06	SGR-DU156(2-4)-B		07/27/16 10:26 AM	7/28/2016
1607317-07	SGR-DU156(4-6)-B		07/27/16 10:28 AM	7/28/2016
1607317-08	SGR-DU156(6-8)-B		07/27/16 10:30 AM	7/28/2016
1607317-09	SGR-DU156(0-2)-C		07/27/16 10:33 AM	7/28/2016
1607317-10	SGR-DU156(2-4)-C		07/27/16 10:35 AM	7/28/2016
1607317-11	SGR-DU156(4-6)-C		07/27/16 10:37 AM	7/28/2016
1607317-12	SGR-DU156(6-8)-C		07/27/16 10:39 AM	7/28/2016
1607317-13	EB01(20160727)		07/27/16 10:45 AM	7/28/2016
1607317-14	SGR-DU080(0-2)-A		07/27/16 12:44 PM	7/28/2016
1607317-15	SGR-DU080(2-4)-A		07/27/16 12:46 PM	7/28/2016
1607317-16	SGR-DU080(4-6)-A		07/27/16 12:48 PM	7/28/2016
1607317-17	SGR-DU080(6-8)-A		07/27/16 12:50 PM	7/28/2016
1607317-18	SGR-DU080(0-2)-B		07/27/16 12:52 PM	7/28/2016
1607317-19	SGR-DU080(2-4)-B		07/27/16 12:54 PM	7/28/2016
1607317-20	SGR-DU080(4-6)-B		07/27/16 12:56 PM	7/28/2016
1607317-21	SGR-DU080(6-8)-B		07/27/16 12:58 PM	7/28/2016
1607317-22	SGR-DU080(0-2)-C		07/27/16 01:00 PM	7/28/2016
1607317-23	SGR-DU080(2-4)-C		07/27/16 01:02 PM	7/28/2016
1607317-24	SGR-DU080(4-6)-C		07/27/16 01:04 PM	7/28/2016
1607317-25	SGR-DU080(6-8)-C		07/27/16 01:06 PM	7/28/2016
1607317-26	EB02(20160727)		07/27/16 01:10 PM	7/28/2016
1607317-27	SGR-DU176(0-2)-A		07/27/16 03:00 PM	7/28/2016
1607317-28	SGR-DU176(2-4)-A		07/27/16 03:02 PM	7/28/2016
1607317-29	SGR-DU176(4-6)-A		07/27/16 03:04 PM	7/28/2016
1607317-30	SGR-DU176(6-8)-A		07/27/16 03:06 PM	7/28/2016
1607317-31	SGR-DU176(0-2)-B		07/27/16 03:15 PM	7/28/2016
1607317-32	SGR-DU176(2-4)-B		07/27/16 03:17 PM	7/28/2016
1607317-33	SGR-DU176(4-6)-B		07/27/16 03:19 PM	7/28/2016
1607317-34	SGR-DU176(6-8)-B		07/27/16 03:21 PM	7/28/2016
1607317-35	SGR-DU176(0-2)-C		07/27/16 03:22 PM	7/28/2016
1607317-36	SGR-DU176(2-4)-C		07/27/16 03:24 PM	7/28/2016
1607317-37	SGR-DU176(4-6)-C		07/27/16 03:26 PM	7/28/2016
1607317-38	SGR-DU176(6-8)-C		07/27/16 03:28 PM	7/28/2016
1607317-39	EB03(20160727)		07/27/16 03:35 PM	7/28/2016

Lab Order: 1607317
Client: Arcadis
Project: Laredo SGR

PREP DATES REPORT

Sample ID	Client Sample ID	Collection Date	Matrix	Test Number	Test Name	Prep Date	Batch ID
1607317-01A	SGR-DU156(0-2)-A	07/27/16 10:15 AM	Soil	SW3550C	Soil Prep Sonication: PAH	08/01/16 09:55 AM	76583
	SGR-DU156(0-2)-A	07/27/16 10:15 AM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/05/16 10:59 AM	76690
1607317-02A	SGR-DU156(2-4)-A	07/27/16 10:17 AM	Soil	SW3550C	Soil Prep Sonication: PAH	08/01/16 09:55 AM	76583
	SGR-DU156(2-4)-A	07/27/16 10:17 AM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/05/16 10:59 AM	76690
1607317-03A	SGR-DU156(4-6)-A	07/27/16 10:19 AM	Soil	SW3550C	Soil Prep Sonication: PAH	08/01/16 09:55 AM	76583
	SGR-DU156(4-6)-A	07/27/16 10:19 AM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/05/16 10:59 AM	76690
1607317-04A	SGR-DU156(6-8)-A	07/27/16 10:21 AM	Soil	SW3550C	Soil Prep Sonication: PAH	08/01/16 09:55 AM	76583
	SGR-DU156(6-8)-A	07/27/16 10:21 AM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/05/16 10:59 AM	76690
1607317-05A	SGR-DU156(0-2)-B	07/27/16 10:24 AM	Soil	SW3550C	Soil Prep Sonication: PAH	08/02/16 09:18 AM	76609
	SGR-DU156(0-2)-B	07/27/16 10:24 AM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/05/16 10:59 AM	76690
1607317-06A	SGR-DU156(2-4)-B	07/27/16 10:26 AM	Soil	SW3550C	Soil Prep Sonication: PAH	08/02/16 09:18 AM	76609
	SGR-DU156(2-4)-B	07/27/16 10:26 AM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/05/16 10:59 AM	76690
1607317-07A	SGR-DU156(4-6)-B	07/27/16 10:28 AM	Soil	SW3550C	Soil Prep Sonication: PAH	08/02/16 09:18 AM	76609
	SGR-DU156(4-6)-B	07/27/16 10:28 AM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/05/16 10:59 AM	76690
1607317-08A	SGR-DU156(6-8)-B	07/27/16 10:30 AM	Soil	SW3550C	Soil Prep Sonication: PAH	08/02/16 09:18 AM	76609
	SGR-DU156(6-8)-B	07/27/16 10:30 AM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/08/16 02:29 PM	76716
1607317-09A	SGR-DU156(0-2)-C	07/27/16 10:33 AM	Soil	SW3550C	Soil Prep Sonication: PAH	08/02/16 09:18 AM	76609
	SGR-DU156(0-2)-C	07/27/16 10:33 AM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/08/16 02:29 PM	76716
1607317-10A	SGR-DU156(2-4)-C	07/27/16 10:35 AM	Soil	SW3550C	Soil Prep Sonication: PAH	08/02/16 09:18 AM	76609
	SGR-DU156(2-4)-C	07/27/16 10:35 AM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/08/16 02:29 PM	76716
1607317-11A	SGR-DU156(4-6)-C	07/27/16 10:37 AM	Soil	SW3550C	Soil Prep Sonication: PAH	08/02/16 09:18 AM	76609
	SGR-DU156(4-6)-C	07/27/16 10:37 AM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/08/16 02:29 PM	76716
1607317-12A	SGR-DU156(6-8)-C	07/27/16 10:39 AM	Soil	SW3550C	Soil Prep Sonication: PAH	08/02/16 09:18 AM	76609
	SGR-DU156(6-8)-C	07/27/16 10:39 AM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/08/16 02:29 PM	76716
1607317-13A	EB01(20160727)	07/27/16 10:45 AM	Equip Blank	SW3005A	Aq Prep Metals : ICP-MS	08/05/16 10:30 AM	76687
1607317-13B	EB01(20160727)	07/27/16 10:45 AM	Equip Blank	SW3510C	Aq Prep Sep Funnel: PAH	07/29/16 10:26 AM	76564
1607317-14A	SGR-DU080(0-2)-A	07/27/16 12:44 PM	Soil	SW3550C	Soil Prep Sonication: PAH	08/02/16 09:18 AM	76609
	SGR-DU080(0-2)-A	07/27/16 12:44 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/08/16 02:29 PM	76716

Lab Order: 1607317
Client: Arcadis
Project: Laredo SGR

PREP DATES REPORT

Sample ID	Client Sample ID	Collection Date	Matrix	Test Number	Test Name	Prep Date	Batch ID
1607317-15A	SGR-DU080(2-4)-A	07/27/16 12:46 PM	Soil	SW3550C	Soil Prep Sonication: PAH	08/02/16 09:18 AM	76609
	SGR-DU080(2-4)-A	07/27/16 12:46 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/08/16 02:29 PM	76716
1607317-16A	SGR-DU080(4-6)-A	07/27/16 12:48 PM	Soil	SW3550C	Soil Prep Sonication: PAH	08/02/16 09:18 AM	76609
	SGR-DU080(4-6)-A	07/27/16 12:48 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/08/16 02:29 PM	76716
1607317-17A	SGR-DU080(6-8)-A	07/27/16 12:50 PM	Soil	SW3550C	Soil Prep Sonication: PAH	08/02/16 09:18 AM	76609
	SGR-DU080(6-8)-A	07/27/16 12:50 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/08/16 02:29 PM	76716
1607317-18A	SGR-DU080(0-2)-B	07/27/16 12:52 PM	Soil	SW3550C	Soil Prep Sonication: PAH	08/02/16 09:18 AM	76609
	SGR-DU080(0-2)-B	07/27/16 12:52 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/08/16 02:29 PM	76716
1607317-19A	SGR-DU080(2-4)-B	07/27/16 12:54 PM	Soil	SW3550C	Soil Prep Sonication: PAH	08/02/16 09:18 AM	76609
	SGR-DU080(2-4)-B	07/27/16 12:54 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/08/16 02:29 PM	76716
1607317-20A	SGR-DU080(4-6)-B	07/27/16 12:56 PM	Soil	SW3550C	Soil Prep Sonication: PAH	08/02/16 09:18 AM	76609
	SGR-DU080(4-6)-B	07/27/16 12:56 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/08/16 02:29 PM	76716
1607317-21A	SGR-DU080(6-8)-B	07/27/16 12:58 PM	Soil	SW3550C	Soil Prep Sonication: PAH	08/02/16 09:18 AM	76609
	SGR-DU080(6-8)-B	07/27/16 12:58 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/08/16 02:29 PM	76716
1607317-22A	SGR-DU080(0-2)-C	07/27/16 01:00 PM	Soil	SW3550C	Soil Prep Sonication: PAH	08/02/16 09:18 AM	76609
	SGR-DU080(0-2)-C	07/27/16 01:00 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/08/16 02:29 PM	76716
1607317-23A	SGR-DU080(2-4)-C	07/27/16 01:02 PM	Soil	SW3550C	Soil Prep Sonication: PAH	08/02/16 09:18 AM	76609
	SGR-DU080(2-4)-C	07/27/16 01:02 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/08/16 02:29 PM	76716
1607317-24A	SGR-DU080(4-6)-C	07/27/16 01:04 PM	Soil	SW3550C	Soil Prep Sonication: PAH	08/02/16 09:18 AM	76609
	SGR-DU080(4-6)-C	07/27/16 01:04 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/08/16 02:29 PM	76716
1607317-25A	SGR-DU080(6-8)-C	07/27/16 01:06 PM	Soil	SW3550C	Soil Prep Sonication: PAH	08/02/16 09:18 AM	76609
	SGR-DU080(6-8)-C	07/27/16 01:06 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/08/16 02:29 PM	76716
1607317-26A	EB02(20160727)	07/27/16 01:10 PM	Equip Blank	SW3005A	Aq Prep Metals : ICP-MS	08/05/16 10:30 AM	76687
1607317-26B	EB02(20160727)	07/27/16 01:10 PM	Equip Blank	SW3510C	Aq Prep Sep Funnel: PAH	07/29/16 10:26 AM	76564
1607317-27A	SGR-DU176(0-2)-A	07/27/16 03:00 PM	Soil	SW3550C	Soil Prep Sonication: PAH	08/02/16 12:41 PM	76617
	SGR-DU176(0-2)-A	07/27/16 03:00 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/08/16 02:31 PM	76717
	SGR-DU176(0-2)-A	07/27/16 03:00 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/08/16 02:31 PM	76717
1607317-28A	SGR-DU176(2-4)-A	07/27/16 03:02 PM	Soil	SW3550C	Soil Prep Sonication: PAH	08/02/16 12:41 PM	76617

Lab Order: 1607317
Client: Arcadis
Project: Laredo SGR

PREP DATES REPORT

Sample ID	Client Sample ID	Collection Date	Matrix	Test Number	Test Name	Prep Date	Batch ID
1607317-28A	SGR-DU176(2-4)-A	07/27/16 03:02 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/08/16 02:29 PM	76716
1607317-29A	SGR-DU176(4-6)-A	07/27/16 03:04 PM	Soil	SW3550C	Soil Prep Sonication: PAH	08/02/16 12:41 PM	76617
	SGR-DU176(4-6)-A	07/27/16 03:04 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/08/16 02:29 PM	76716
1607317-30A	SGR-DU176(6-8)-A	07/27/16 03:06 PM	Soil	SW3550C	Soil Prep Sonication: PAH	08/02/16 12:41 PM	76617
	SGR-DU176(6-8)-A	07/27/16 03:06 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/08/16 02:29 PM	76716
1607317-31A	SGR-DU176(0-2)-B	07/27/16 03:15 PM	Soil	SW3550C	Soil Prep Sonication: PAH	08/02/16 12:41 PM	76617
	SGR-DU176(0-2)-B	07/27/16 03:15 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/08/16 02:31 PM	76717
1607317-32A	SGR-DU176(2-4)-B	07/27/16 03:17 PM	Soil	SW3550C	Soil Prep Sonication: PAH	08/02/16 12:41 PM	76617
	SGR-DU176(2-4)-B	07/27/16 03:17 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/08/16 02:31 PM	76717
1607317-33A	SGR-DU176(4-6)-B	07/27/16 03:19 PM	Soil	SW3550C	Soil Prep Sonication: PAH	08/02/16 12:41 PM	76617
	SGR-DU176(4-6)-B	07/27/16 03:19 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/08/16 02:31 PM	76717
1607317-34A	SGR-DU176(6-8)-B	07/27/16 03:21 PM	Soil	SW3550C	Soil Prep Sonication: PAH	08/02/16 12:41 PM	76617
	SGR-DU176(6-8)-B	07/27/16 03:21 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/08/16 02:31 PM	76717
1607317-35A	SGR-DU176(0-2)-C	07/27/16 03:22 PM	Soil	SW3550C	Soil Prep Sonication: PAH	08/02/16 12:41 PM	76617
	SGR-DU176(0-2)-C	07/27/16 03:22 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/08/16 02:31 PM	76717
1607317-36A	SGR-DU176(2-4)-C	07/27/16 03:24 PM	Soil	SW3550C	Soil Prep Sonication: PAH	08/02/16 12:41 PM	76617
	SGR-DU176(2-4)-C	07/27/16 03:24 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/08/16 02:31 PM	76717
1607317-37A	SGR-DU176(4-6)-C	07/27/16 03:26 PM	Soil	SW3550C	Soil Prep Sonication: PAH	08/02/16 12:41 PM	76617
	SGR-DU176(4-6)-C	07/27/16 03:26 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/08/16 02:31 PM	76717
1607317-38A	SGR-DU176(6-8)-C	07/27/16 03:28 PM	Soil	SW3550C	Soil Prep Sonication: PAH	08/02/16 12:41 PM	76617
	SGR-DU176(6-8)-C	07/27/16 03:28 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/08/16 02:31 PM	76717
1607317-39A	EB03(20160727)	07/27/16 03:35 PM	Equip Blank	SW3005A	Aq Prep Metals : ICP-MS	08/11/16 10:03 AM	76774
1607317-39B	EB03(20160727)	07/27/16 03:35 PM	Equip Blank	SW3510C	Aq Prep Sep Funnel: PAH	07/29/16 10:26 AM	76564

Lab Order: 1607317
Client: Arcadis
Project: Laredo SGR

ISM PREP DATES REPORT

Sample ID	Client Sample ID	Collection Date	Matrix	Test Number	Test Name	Prep Date	Batch ID
1607317-01A	SGR-DU156(0-2)-A	7/27/2016 10:15:00 AM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/28/2016 4:31:01 PM	76551
1607317-02A	SGR-DU156(2-4)-A	7/27/2016 10:17:00 AM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/28/2016 4:31:01 PM	76551
1607317-03A	SGR-DU156(4-6)-A	7/27/2016 10:19:00 AM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/28/2016 4:31:01 PM	76551
1607317-04A	SGR-DU156(6-8)-A	7/27/2016 10:21:00 AM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/28/2016 4:31:01 PM	76551
1607317-05A	SGR-DU156(0-2)-B	7/27/2016 10:24:00 AM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/28/2016 4:31:01 PM	76551
1607317-06A	SGR-DU156(2-4)-B	7/27/2016 10:26:00 AM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/28/2016 4:31:01 PM	76551
1607317-07A	SGR-DU156(4-6)-B	7/27/2016 10:28:00 AM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/28/2016 4:31:01 PM	76551
1607317-08A	SGR-DU156(6-8)-B	7/27/2016 10:30:00 AM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/28/2016 4:31:01 PM	76551
1607317-09A	SGR-DU156(0-2)-C	7/27/2016 10:33:00 AM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/28/2016 4:31:01 PM	76551
1607317-10A	SGR-DU156(2-4)-C	7/27/2016 10:35:00 AM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/28/2016 4:31:01 PM	76551
1607317-11A	SGR-DU156(4-6)-C	7/27/2016 10:37:00 AM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/28/2016 4:31:01 PM	76551
1607317-12A	SGR-DU156(6-8)-C	7/27/2016 10:39:00 AM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/28/2016 4:31:01 PM	76551
1607317-14A	SGR-DU080(0-2)-A	7/27/2016 12:44:00 PM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/28/2016 4:31:01 PM	76551
1607317-15A	SGR-DU080(2-4)-A	7/27/2016 12:46:00 PM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/28/2016 4:31:01 PM	76551
1607317-16A	SGR-DU080(4-6)-A	7/27/2016 12:48:00 PM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/28/2016 4:31:01 PM	76551
1607317-17A	SGR-DU080(6-8)-A	7/27/2016 12:50:00 PM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/28/2016 4:31:01 PM	76551
1607317-18A	SGR-DU080(0-2)-B	7/27/2016 12:52:00 PM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/28/2016 4:31:01 PM	76551
1607317-19A	SGR-DU080(2-4)-B	7/27/2016 12:54:00 PM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/28/2016 4:31:01 PM	76551
1607317-20A	SGR-DU080(4-6)-B	7/27/2016 12:56:00 PM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/28/2016 4:31:01 PM	76551
1607317-21A	SGR-DU080(6-8)-B	7/27/2016 12:58:00 PM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/28/2016 4:31:01 PM	76551
1607317-22A	SGR-DU080(0-2)-C	7/27/2016 1:00:00 PM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/28/2016 4:31:01 PM	76551
1607317-23A	SGR-DU080(2-4)-C	7/27/2016 1:02:00 PM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/28/2016 4:31:01 PM	76551
1607317-24A	SGR-DU080(4-6)-C	7/27/2016 1:04:00 PM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/28/2016 4:31:01 PM	76551
1607317-25A	SGR-DU080(6-8)-C	7/27/2016 1:06:00 PM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/28/2016 4:31:01 PM	76551
1607317-27A	SGR-DU176(0-2)-A	7/27/2016 3:00:00 PM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/28/2016 4:31:01 PM	76551
1607317-28A	SGR-DU176(2-4)-A	7/27/2016 3:02:00 PM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/28/2016 4:31:01 PM	76551
1607317-29A	SGR-DU176(4-6)-A	7/27/2016 3:04:00 PM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/28/2016 4:31:01 PM	76551
1607317-30A	SGR-DU176(6-8)-A	7/27/2016 3:06:00 PM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/28/2016 4:31:01 PM	76551

Lab Order: 1607317
Client: Arcadis
Project: Laredo SGR

ISM PREP DATES REPORT

Sample ID	Client Sample ID	Collection Date	Matrix	Test Number	Test Name	Prep Date	Batch ID
1607317-31A	SGR-DU176(0-2)-B	7/27/2016 3:15:00 PM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/28/2016 4:31:01 PM	76551
1607317-32A	SGR-DU176(2-4)-B	7/27/2016 3:17:00 PM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/28/2016 4:31:01 PM	76551
1607317-33A	SGR-DU176(4-6)-B	7/27/2016 3:19:00 PM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/28/2016 4:31:01 PM	76551
1607317-34A	SGR-DU176(6-8)-B	7/27/2016 3:21:00 PM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/28/2016 4:31:01 PM	76551
1607317-35A	SGR-DU176(0-2)-C	7/27/2016 3:22:00 PM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/28/2016 4:31:01 PM	76551
1607317-36A	SGR-DU176(2-4)-C	7/27/2016 3:24:00 PM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/28/2016 4:31:01 PM	76551
1607317-37A	SGR-DU176(4-6)-C	7/27/2016 3:26:00 PM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/28/2016 4:31:01 PM	76551
1607317-38A	SGR-DU176(6-8)-C	7/27/2016 3:28:00 PM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/28/2016 4:31:01 PM	76551

Lab Order: 1607317
Client: Arcadis
Project: Laredo SGR

ANALYTICAL DATES REPORT

Sample ID	Client Sample ID	Matrix	Test Number	Test Name	Batch ID	Dilution	Analysis Date	Run ID
1607317-01A	SGR-DU156(0-2)-A	Soil	SW8270D-LL	PAHs: GC/MS	76583	10	08/09/16 02:23 AM	GCMS6_160808A
	SGR-DU156(0-2)-A	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76690	5	08/10/16 06:54 PM	ICP-MS3_160810B
1607317-02A	SGR-DU156(2-4)-A	Soil	SW8270D-LL	PAHs: GC/MS	76583	10	08/09/16 03:03 AM	GCMS6_160808A
	SGR-DU156(2-4)-A	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76690	5	08/10/16 06:59 PM	ICP-MS3_160810B
1607317-03A	SGR-DU156(4-6)-A	Soil	SW8270D-LL	PAHs: GC/MS	76583	10	08/09/16 03:43 AM	GCMS6_160808A
	SGR-DU156(4-6)-A	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76690	5	08/10/16 07:11 PM	ICP-MS3_160810B
1607317-04A	SGR-DU156(6-8)-A	Soil	SW8270D-LL	PAHs: GC/MS	76583	10	08/09/16 04:24 AM	GCMS6_160808A
	SGR-DU156(6-8)-A	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76690	5	08/10/16 07:17 PM	ICP-MS3_160810B
1607317-05A	SGR-DU156(0-2)-B	Soil	SW8270D-LL	PAHs: GC/MS	76609	10	08/09/16 10:57 AM	GCMS6_160809A
	SGR-DU156(0-2)-B	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76690	5	08/10/16 07:23 PM	ICP-MS3_160810B
1607317-06A	SGR-DU156(2-4)-B	Soil	SW8270D-LL	PAHs: GC/MS	76609	10	08/09/16 11:37 AM	GCMS6_160809A
	SGR-DU156(2-4)-B	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76690	5	08/10/16 07:29 PM	ICP-MS3_160810B
1607317-07A	SGR-DU156(4-6)-B	Soil	SW8270D-LL	PAHs: GC/MS	76609	10	08/09/16 12:18 PM	GCMS6_160809A
	SGR-DU156(4-6)-B	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76690	5	08/10/16 07:35 PM	ICP-MS3_160810B
1607317-08A	SGR-DU156(6-8)-B	Soil	SW8270D-LL	PAHs: GC/MS	76609	10	08/09/16 12:59 PM	GCMS6_160809A
	SGR-DU156(6-8)-B	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76716	5	08/10/16 08:41 PM	ICP-MS3_160810B
1607317-09A	SGR-DU156(0-2)-C	Soil	SW8270D-LL	PAHs: GC/MS	76609	10	08/09/16 01:40 PM	GCMS6_160809A
	SGR-DU156(0-2)-C	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76716	5	08/10/16 08:30 PM	ICP-MS3_160810B
1607317-10A	SGR-DU156(2-4)-C	Soil	SW8270D-LL	PAHs: GC/MS	76609	10	08/09/16 02:22 PM	GCMS6_160809A
	SGR-DU156(2-4)-C	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76716	5	08/10/16 08:47 PM	ICP-MS3_160810B
1607317-11A	SGR-DU156(4-6)-C	Soil	SW8270D-LL	PAHs: GC/MS	76609	10	08/09/16 03:03 PM	GCMS6_160809A
	SGR-DU156(4-6)-C	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76716	5	08/10/16 08:53 PM	ICP-MS3_160810B
1607317-12A	SGR-DU156(6-8)-C	Soil	SW8270D-LL	PAHs: GC/MS	76609	10	08/09/16 03:45 PM	GCMS6_160809A
	SGR-DU156(6-8)-C	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76716	5	08/10/16 08:59 PM	ICP-MS3_160810B
1607317-13A	EB01(20160727)	Equip Blank	SW6020A	Trace Metals: ICP-MS - Water	76687	1	08/10/16 02:16 AM	ICP-MS3_160809B
1607317-13B	EB01(20160727)	Equip Blank	SW8270D-LL	PAHs: GC/MS	76564	1	08/03/16 07:06 PM	GCMS8_160803B
1607317-14A	SGR-DU080(0-2)-A	Soil	SW8270D-LL	PAHs: GC/MS	76609	10	08/09/16 04:26 PM	GCMS6_160809A
	SGR-DU080(0-2)-A	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76716	5	08/10/16 09:05 PM	ICP-MS3_160810B

Lab Order: 1607317
Client: Arcadis
Project: Laredo SGR

ANALYTICAL DATES REPORT

Sample ID	Client Sample ID	Matrix	Test Number	Test Name	Batch ID	Dilution	Analysis Date	Run ID
1607317-15A	SGR-DU080(2-4)-A	Soil	SW8270D-LL	PAHs: GC/MS	76609	10	08/09/16 05:07 PM	GCMS6_160809A
	SGR-DU080(2-4)-A	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76716	5	08/10/16 09:17 PM	ICP-MS3_160810B
1607317-16A	SGR-DU080(4-6)-A	Soil	SW8270D-LL	PAHs: GC/MS	76609	10	08/09/16 05:48 PM	GCMS6_160809A
	SGR-DU080(4-6)-A	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76716	5	08/10/16 09:23 PM	ICP-MS3_160810B
1607317-17A	SGR-DU080(6-8)-A	Soil	SW8270D-LL	PAHs: GC/MS	76609	10	08/09/16 06:28 PM	GCMS6_160809A
	SGR-DU080(6-8)-A	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76716	5	08/10/16 09:29 PM	ICP-MS3_160810B
1607317-18A	SGR-DU080(0-2)-B	Soil	SW8270D-LL	PAHs: GC/MS	76609	10	08/09/16 09:49 PM	GCMS6_160809A
	SGR-DU080(0-2)-B	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76716	5	08/10/16 09:35 PM	ICP-MS3_160810B
1607317-19A	SGR-DU080(2-4)-B	Soil	SW8270D-LL	PAHs: GC/MS	76609	10	08/09/16 10:29 PM	GCMS6_160809A
	SGR-DU080(2-4)-B	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76716	5	08/10/16 10:23 PM	ICP-MS3_160810B
1607317-20A	SGR-DU080(4-6)-B	Soil	SW8270D-LL	PAHs: GC/MS	76609	10	08/09/16 11:09 PM	GCMS6_160809A
	SGR-DU080(4-6)-B	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76716	5	08/10/16 10:29 PM	ICP-MS3_160810B
1607317-21A	SGR-DU080(6-8)-B	Soil	SW8270D-LL	PAHs: GC/MS	76609	10	08/09/16 11:48 PM	GCMS6_160809A
	SGR-DU080(6-8)-B	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76716	5	08/10/16 10:34 PM	ICP-MS3_160810B
1607317-22A	SGR-DU080(0-2)-C	Soil	SW8270D-LL	PAHs: GC/MS	76609	10	08/10/16 12:28 AM	GCMS6_160809A
	SGR-DU080(0-2)-C	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76716	5	08/10/16 10:40 PM	ICP-MS3_160810B
1607317-23A	SGR-DU080(2-4)-C	Soil	SW8270D-LL	PAHs: GC/MS	76609	10	08/10/16 01:08 AM	GCMS6_160809A
	SGR-DU080(2-4)-C	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76716	5	08/10/16 10:46 PM	ICP-MS3_160810B
1607317-24A	SGR-DU080(4-6)-C	Soil	SW8270D-LL	PAHs: GC/MS	76609	10	08/10/16 01:49 AM	GCMS6_160809A
	SGR-DU080(4-6)-C	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76716	5	08/10/16 10:58 PM	ICP-MS3_160810B
1607317-25A	SGR-DU080(6-8)-C	Soil	SW8270D-LL	PAHs: GC/MS	76609	10	08/10/16 02:29 AM	GCMS6_160809A
	SGR-DU080(6-8)-C	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76716	5	08/10/16 11:04 PM	ICP-MS3_160810B
1607317-26A	EB02(20160727)	Equip Blank	SW6020A	Trace Metals: ICP-MS - Water	76687	1	08/10/16 02:22 AM	ICP-MS3_160809B
1607317-26B	EB02(20160727)	Equip Blank	SW8270D-LL	PAHs: GC/MS	76564	1	08/03/16 10:26 PM	GCMS8_160803B
1607317-27A	SGR-DU176(0-2)-A	Soil	SW8270D-LL	PAHs: GC/MS	76617	10	08/09/16 11:05 AM	GCMS8_160809A
	SGR-DU176(0-2)-A	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76717	5	08/11/16 12:17 AM	ICP-MS3_160810B
	SGR-DU176(0-2)-A	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76717	5	08/11/16 04:24 PM	ICP-MS4_160811D
1607317-28A	SGR-DU176(2-4)-A	Soil	SW8270D-LL	PAHs: GC/MS	76617	10	08/09/16 11:45 AM	GCMS8_160809A

Lab Order: 1607317
Client: Arcadis
Project: Laredo SGR

ANALYTICAL DATES REPORT

Sample ID	Client Sample ID	Matrix	Test Number	Test Name	Batch ID	Dilution	Analysis Date	Run ID
1607317-28A	SGR-DU176(2-4)-A	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76716	5	08/10/16 11:10 PM	ICP-MS3_160810B
1607317-29A	SGR-DU176(4-6)-A	Soil	SW8270D-LL	PAHs: GC/MS	76617	10	08/09/16 12:25 PM	GCMS8_160809A
	SGR-DU176(4-6)-A	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76716	5	08/10/16 11:16 PM	ICP-MS3_160810B
1607317-30A	SGR-DU176(6-8)-A	Soil	SW8270D-LL	PAHs: GC/MS	76617	10	08/09/16 01:05 PM	GCMS8_160809A
	SGR-DU176(6-8)-A	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76716	5	08/10/16 11:22 PM	ICP-MS3_160810B
1607317-31A	SGR-DU176(0-2)-B	Soil	SW8270D-LL	PAHs: GC/MS	76617	10	08/09/16 01:45 PM	GCMS8_160809A
	SGR-DU176(0-2)-B	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76717	5	08/11/16 12:29 AM	ICP-MS3_160810B
1607317-32A	SGR-DU176(2-4)-B	Soil	SW8270D-LL	PAHs: GC/MS	76617	10	08/09/16 02:25 PM	GCMS8_160809A
	SGR-DU176(2-4)-B	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76717	5	08/11/16 12:59 AM	ICP-MS3_160810B
1607317-33A	SGR-DU176(4-6)-B	Soil	SW8270D-LL	PAHs: GC/MS	76617	10	08/09/16 03:06 PM	GCMS8_160809A
	SGR-DU176(4-6)-B	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76717	5	08/11/16 01:05 AM	ICP-MS3_160810B
1607317-34A	SGR-DU176(6-8)-B	Soil	SW8270D-LL	PAHs: GC/MS	76617	10	08/09/16 03:46 PM	GCMS8_160809A
	SGR-DU176(6-8)-B	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76717	5	08/11/16 01:11 AM	ICP-MS3_160810B
1607317-35A	SGR-DU176(0-2)-C	Soil	SW8270D-LL	PAHs: GC/MS	76617	10	08/09/16 04:27 PM	GCMS8_160809A
	SGR-DU176(0-2)-C	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76717	5	08/11/16 01:16 AM	ICP-MS3_160810B
1607317-36A	SGR-DU176(2-4)-C	Soil	SW8270D-LL	PAHs: GC/MS	76617	10	08/09/16 05:08 PM	GCMS8_160809A
	SGR-DU176(2-4)-C	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76717	5	08/11/16 01:29 AM	ICP-MS3_160810B
1607317-37A	SGR-DU176(4-6)-C	Soil	SW8270D-LL	PAHs: GC/MS	76617	10	08/09/16 05:48 PM	GCMS8_160809A
	SGR-DU176(4-6)-C	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76717	5	08/11/16 01:35 AM	ICP-MS3_160810B
1607317-38A	SGR-DU176(6-8)-C	Soil	SW8270D-LL	PAHs: GC/MS	76617	10	08/09/16 06:27 PM	GCMS8_160809A
	SGR-DU176(6-8)-C	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76717	5	08/11/16 01:40 AM	ICP-MS3_160810B
1607317-39A	EB03(20160727)	Equip Blank	SW6020A	Trace Metals: ICP-MS - Water	76774	1	08/11/16 06:20 PM	ICP-MS4_160811D
1607317-39B	EB03(20160727)	Equip Blank	SW8270D-LL	PAHs: GC/MS	76564	1	08/03/16 11:06 PM	GCMS8_160803B

DHL Analytical, Inc.

Date: *19-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU156(0-2)-A
Project:	Laredo SGR	**Lab ID:**	1607317-01
Project No:	04285081.0000.00044	**Collection Date:**	07/27/16 10:15 AM
Lab Order:	1607317	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **CVD**
Lead	40.8	0.0909	0.273	0.136		mg/Kg-dry	5	08/10/16 06:54 PM
IS: Bismuth	82.3	0	30-120	0		%REC	5	08/10/16 06:54 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0739	0.0493	0.0985	0.0739	U	mg/Kg-dry	10	08/09/16 02:23 AM
Acenaphthylene	0.0739	0.0493	0.0985	0.0739	U	mg/Kg-dry	10	08/09/16 02:23 AM
Anthracene	0.0739	0.0493	0.0985	0.0739	U	mg/Kg-dry	10	08/09/16 02:23 AM
Benzo[a]anthracene	0.0962	0.0493	0.0985	0.0739	J	mg/Kg-dry	10	08/09/16 02:23 AM
Benzo[a]pyrene	0.141	0.0493	0.0985	0.0739		mg/Kg-dry	10	08/09/16 02:23 AM
Benzo[b]fluoranthene	0.138	0.0493	0.0985	0.0739		mg/Kg-dry	10	08/09/16 02:23 AM
Benzo[e]pyrene	0.111	0.0493	0.0985	0.0739		mg/Kg-dry	10	08/09/16 02:23 AM
Benzo[g,h,i]perylene	0.133	0.0493	0.0985	0.0739		mg/Kg-dry	10	08/09/16 02:23 AM
Benzo[j]fluoranthene	0.0709	0.0493	0.0985	0.0739	JN	mg/Kg-dry	10	08/09/16 02:23 AM
Benzo[k]fluoranthene	0.0714	0.0493	0.0985	0.0739	J	mg/Kg-dry	10	08/09/16 02:23 AM
Chrysene	0.129	0.0493	0.0985	0.0739		mg/Kg-dry	10	08/09/16 02:23 AM
Dibenz[a,h]anthracene	0.0739	0.0493	0.0985	0.0739	U	mg/Kg-dry	10	08/09/16 02:23 AM
Fluoranthene	0.142	0.0493	0.0985	0.0739		mg/Kg-dry	10	08/09/16 02:23 AM
Fluorene	0.0739	0.0493	0.0985	0.0739	U	mg/Kg-dry	10	08/09/16 02:23 AM
Indeno[1,2,3-cd]pyrene	0.107	0.0493	0.0985	0.0739		mg/Kg-dry	10	08/09/16 02:23 AM
Phenanthrene	0.0739	0.0493	0.0985	0.0739	U	mg/Kg-dry	10	08/09/16 02:23 AM
Pyrene	0.138	0.0493	0.0985	0.0739		mg/Kg-dry	10	08/09/16 02:23 AM
IS: Acenaphthene-d10	133	0	50-200	0		%REC	10	08/09/16 02:23 AM
IS: Chrysene-d12	109	0	50-200	0		%REC	10	08/09/16 02:23 AM
IS: Naphthalene-d8	104	0	50-200	0		%REC	10	08/09/16 02:23 AM
IS: Perylene-d12	111	0	50-200	0		%REC	10	08/09/16 02:23 AM
IS: Phenanthrene-d10	95.6	0	50-200	0		%REC	10	08/09/16 02:23 AM
Surr: 2-Fluorobiphenyl	74.4	0	46-115	0		%REC	10	08/09/16 02:23 AM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU156(0-2)-A
Project:	Laredo SGR	**Lab ID:**	1607317-01
Project No:	04285081.0000.00044	**Collection Date:**	07/27/16 10:15 AM
Lab Order:	1607317	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	81.2	0	58-133	0		%REC	10	08/09/16 02:23 AM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *19-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU156(2-4)-A
Project:	Laredo SGR	**Lab ID:**	1607317-02
Project No:	04285081.0000.00044	**Collection Date:**	07/27/16 10:17 AM
Lab Order:	1607317	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **CVD**
Lead	9.73	0.0943	0.283	0.142		mg/Kg-dry	5	08/10/16 06:59 PM
IS: Bismuth	80.6	0	30-120	0		%REC	5	08/10/16 06:59 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0737	0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/09/16 03:03 AM
Acenaphthylene	0.0737	0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/09/16 03:03 AM
Anthracene	0.0737	0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/09/16 03:03 AM
Benzo[a]anthracene	0.0737	0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/09/16 03:03 AM
Benzo[a]pyrene	0.0737	0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/09/16 03:03 AM
Benzo[b]fluoranthene	0.0737	0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/09/16 03:03 AM
Benzo[e]pyrene	0.0737	0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/09/16 03:03 AM
Benzo[g,h,i]perylene	0.0737	0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/09/16 03:03 AM
Benzo[j]fluoranthene	0.0737	0.0492	0.0983	0.0737	NU	mg/Kg-dry	10	08/09/16 03:03 AM
Benzo[k]fluoranthene	0.0737	0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/09/16 03:03 AM
Chrysene	0.0737	0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/09/16 03:03 AM
Dibenz[a,h]anthracene	0.0737	0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/09/16 03:03 AM
Fluoranthene	0.0737	0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/09/16 03:03 AM
Fluorene	0.0737	0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/09/16 03:03 AM
Indeno[1,2,3-cd]pyrene	0.0737	0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/09/16 03:03 AM
Phenanthrene	0.0737	0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/09/16 03:03 AM
Pyrene	0.0737	0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/09/16 03:03 AM
IS: Acenaphthene-d10	137	0	50-200	0		%REC	10	08/09/16 03:03 AM
IS: Chrysene-d12	116	0	50-200	0		%REC	10	08/09/16 03:03 AM
IS: Naphthalene-d8	107	0	50-200	0		%REC	10	08/09/16 03:03 AM
IS: Perylene-d12	118	0	50-200	0		%REC	10	08/09/16 03:03 AM
IS: Phenanthrene-d10	98.5	0	50-200	0		%REC	10	08/09/16 03:03 AM
Surr: 2-Fluorobiphenyl	74.3	0	46-115	0		%REC	10	08/09/16 03:03 AM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU156(2-4)-A
Project:	Laredo SGR	**Lab ID:**	1607317-02
Project No:	04285081.0000.00044	**Collection Date:**	07/27/16 10:17 AM
Lab Order:	1607317	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	79.5	0	58-133	0		%REC	10	08/09/16 03:03 AM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *19-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU156(4-6)-A
Project:	Laredo SGR	**Lab ID:**	1607317-03
Project No:	04285081.0000.00044	**Collection Date:**	07/27/16 10:19 AM
Lab Order:	1607317	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **CVD**
Lead	11.2	0.0935	0.280	0.140		mg/Kg-dry	5	08/10/16 07:11 PM
IS: Bismuth	81.4	0	30-120	0		%REC	5	08/10/16 07:11 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0730	0.0486	0.0973	0.0730	U	mg/Kg-dry	10	08/09/16 03:43 AM
Acenaphthylene	0.0730	0.0486	0.0973	0.0730	U	mg/Kg-dry	10	08/09/16 03:43 AM
Anthracene	0.0730	0.0486	0.0973	0.0730	U	mg/Kg-dry	10	08/09/16 03:43 AM
Benzo[a]anthracene	0.0730	0.0486	0.0973	0.0730	U	mg/Kg-dry	10	08/09/16 03:43 AM
Benzo[a]pyrene	0.0730	0.0486	0.0973	0.0730	U	mg/Kg-dry	10	08/09/16 03:43 AM
Benzo[b]fluoranthene	0.0730	0.0486	0.0973	0.0730	U	mg/Kg-dry	10	08/09/16 03:43 AM
Benzo[e]pyrene	0.0730	0.0486	0.0973	0.0730	U	mg/Kg-dry	10	08/09/16 03:43 AM
Benzo[g,h,i]perylene	0.0730	0.0486	0.0973	0.0730	U	mg/Kg-dry	10	08/09/16 03:43 AM
Benzo[j]fluoranthene	0.0730	0.0486	0.0973	0.0730	NU	mg/Kg-dry	10	08/09/16 03:43 AM
Benzo[k]fluoranthene	0.0730	0.0486	0.0973	0.0730	U	mg/Kg-dry	10	08/09/16 03:43 AM
Chrysene	0.0730	0.0486	0.0973	0.0730	U	mg/Kg-dry	10	08/09/16 03:43 AM
Dibenz[a,h]anthracene	0.0730	0.0486	0.0973	0.0730	U	mg/Kg-dry	10	08/09/16 03:43 AM
Fluoranthene	0.0730	0.0486	0.0973	0.0730	U	mg/Kg-dry	10	08/09/16 03:43 AM
Fluorene	0.0730	0.0486	0.0973	0.0730	U	mg/Kg-dry	10	08/09/16 03:43 AM
Indeno[1,2,3-cd]pyrene	0.0730	0.0486	0.0973	0.0730	U	mg/Kg-dry	10	08/09/16 03:43 AM
Phenanthrene	0.0730	0.0486	0.0973	0.0730	U	mg/Kg-dry	10	08/09/16 03:43 AM
Pyrene	0.0730	0.0486	0.0973	0.0730	U	mg/Kg-dry	10	08/09/16 03:43 AM
IS: Acenaphthene-d10	140	0	50-200	0		%REC	10	08/09/16 03:43 AM
IS: Chrysene-d12	118	0	50-200	0		%REC	10	08/09/16 03:43 AM
IS: Naphthalene-d8	108	0	50-200	0		%REC	10	08/09/16 03:43 AM
IS: Perylene-d12	121	0	50-200	0		%REC	10	08/09/16 03:43 AM
IS: Phenanthrene-d10	102	0	50-200	0		%REC	10	08/09/16 03:43 AM
Surr: 2-Fluorobiphenyl	76.3	0	46-115	0		%REC	10	08/09/16 03:43 AM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU156(4-6)-A
Project:	Laredo SGR	**Lab ID:**	1607317-03
Project No:	04285081.0000.00044	**Collection Date:**	07/27/16 10:19 AM
Lab Order:	1607317	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	85.7	0	58-133	0		%REC	10	08/09/16 03:43 AM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *19-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU156(6-8)-A
Project:	Laredo SGR	**Lab ID:**	1607317-04
Project No:	04285081.0000.00044	**Collection Date:**	07/27/16 10:21 AM
Lab Order:	1607317	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **CVD**
Lead	5.11	0.0971	0.291	0.146		mg/Kg-dry	5	08/10/16 07:17 PM
IS: Bismuth	75.8	0	30-120	0		%REC	5	08/10/16 07:17 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0714	0.0476	0.0951	0.0714	U	mg/Kg-dry	10	08/09/16 04:24 AM
Acenaphthylene	0.0714	0.0476	0.0951	0.0714	U	mg/Kg-dry	10	08/09/16 04:24 AM
Anthracene	0.0714	0.0476	0.0951	0.0714	U	mg/Kg-dry	10	08/09/16 04:24 AM
Benzo[a]anthracene	0.0714	0.0476	0.0951	0.0714	U	mg/Kg-dry	10	08/09/16 04:24 AM
Benzo[a]pyrene	0.0714	0.0476	0.0951	0.0714	U	mg/Kg-dry	10	08/09/16 04:24 AM
Benzo[b]fluoranthene	0.0714	0.0476	0.0951	0.0714	U	mg/Kg-dry	10	08/09/16 04:24 AM
Benzo[e]pyrene	0.0714	0.0476	0.0951	0.0714	U	mg/Kg-dry	10	08/09/16 04:24 AM
Benzo[g,h,i]perylene	0.0714	0.0476	0.0951	0.0714	U	mg/Kg-dry	10	08/09/16 04:24 AM
Benzo[j]fluoranthene	0.0714	0.0476	0.0951	0.0714	NU	mg/Kg-dry	10	08/09/16 04:24 AM
Benzo[k]fluoranthene	0.0714	0.0476	0.0951	0.0714	U	mg/Kg-dry	10	08/09/16 04:24 AM
Chrysene	0.0714	0.0476	0.0951	0.0714	U	mg/Kg-dry	10	08/09/16 04:24 AM
Dibenz[a,h]anthracene	0.0714	0.0476	0.0951	0.0714	U	mg/Kg-dry	10	08/09/16 04:24 AM
Fluoranthene	0.0714	0.0476	0.0951	0.0714	U	mg/Kg-dry	10	08/09/16 04:24 AM
Fluorene	0.0714	0.0476	0.0951	0.0714	U	mg/Kg-dry	10	08/09/16 04:24 AM
Indeno[1,2,3-cd]pyrene	0.0714	0.0476	0.0951	0.0714	U	mg/Kg-dry	10	08/09/16 04:24 AM
Phenanthrene	0.0714	0.0476	0.0951	0.0714	U	mg/Kg-dry	10	08/09/16 04:24 AM
Pyrene	0.0714	0.0476	0.0951	0.0714	U	mg/Kg-dry	10	08/09/16 04:24 AM
IS: Acenaphthene-d10	140	0	50-200	0		%REC	10	08/09/16 04:24 AM
IS: Chrysene-d12	117	0	50-200	0		%REC	10	08/09/16 04:24 AM
IS: Naphthalene-d8	110	0	50-200	0		%REC	10	08/09/16 04:24 AM
IS: Perylene-d12	119	0	50-200	0		%REC	10	08/09/16 04:24 AM
IS: Phenanthrene-d10	102	0	50-200	0		%REC	10	08/09/16 04:24 AM
Surr: 2-Fluorobiphenyl	71.4	0	46-115	0		%REC	10	08/09/16 04:24 AM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU156(6-8)-A
Project:	Laredo SGR	**Lab ID:**	1607317-04
Project No:	04285081.0000.00044	**Collection Date:**	07/27/16 10:21 AM
Lab Order:	1607317	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	79.3	0	58-133	0		%REC	10	08/09/16 04:24 AM

Qualifiers:	*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
	C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
	E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
	MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
	RL	Reporting Limit	S	Spike Recovery outside control limits
	N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *19-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU156(0-2)-B
Project:	Laredo SGR	**Lab ID:**	1607317-05
Project No:	04285081.0000.00044	**Collection Date:**	07/27/16 10:24 AM
Lab Order:	1607317	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **CVD**
Lead	27.6	0.0952	0.286	0.143		mg/Kg-dry	5	08/10/16 07:23 PM
IS: Bismuth	77.3	0	30-120	0		%REC	5	08/10/16 07:23 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0708	0.0472	0.0944	0.0708	U	mg/Kg-dry	10	08/09/16 10:57 AM
Acenaphthylene	0.0708	0.0472	0.0944	0.0708	U	mg/Kg-dry	10	08/09/16 10:57 AM
Anthracene	0.0708	0.0472	0.0944	0.0708	U	mg/Kg-dry	10	08/09/16 10:57 AM
Benzo[a]anthracene	0.0512	0.0472	0.0944	0.0708	J	mg/Kg-dry	10	08/09/16 10:57 AM
Benzo[a]pyrene	0.0693	0.0472	0.0944	0.0708	J	mg/Kg-dry	10	08/09/16 10:57 AM
Benzo[b]fluoranthene	0.0692	0.0472	0.0944	0.0708	J	mg/Kg-dry	10	08/09/16 10:57 AM
Benzo[e]pyrene	0.0567	0.0472	0.0944	0.0708	J	mg/Kg-dry	10	08/09/16 10:57 AM
Benzo[g,h,i]perylene	0.0619	0.0472	0.0944	0.0708	J	mg/Kg-dry	10	08/09/16 10:57 AM
Benzo[j]fluoranthene	0.0708	0.0472	0.0944	0.0708	NU	mg/Kg-dry	10	08/09/16 10:57 AM
Benzo[k]fluoranthene	0.0708	0.0472	0.0944	0.0708	U	mg/Kg-dry	10	08/09/16 10:57 AM
Chrysene	0.0616	0.0472	0.0944	0.0708	J	mg/Kg-dry	10	08/09/16 10:57 AM
Dibenz[a,h]anthracene	0.0708	0.0472	0.0944	0.0708	U	mg/Kg-dry	10	08/09/16 10:57 AM
Fluoranthene	0.0822	0.0472	0.0944	0.0708	J	mg/Kg-dry	10	08/09/16 10:57 AM
Fluorene	0.0708	0.0472	0.0944	0.0708	U	mg/Kg-dry	10	08/09/16 10:57 AM
Indeno[1,2,3-cd]pyrene	0.0549	0.0472	0.0944	0.0708	J	mg/Kg-dry	10	08/09/16 10:57 AM
Phenanthrene	0.0708	0.0472	0.0944	0.0708	U	mg/Kg-dry	10	08/09/16 10:57 AM
Pyrene	0.0734	0.0472	0.0944	0.0708	J	mg/Kg-dry	10	08/09/16 10:57 AM
IS: Acenaphthene-d10	133	0	50-200	0		%REC	10	08/09/16 10:57 AM
IS: Chrysene-d12	113	0	50-200	0		%REC	10	08/09/16 10:57 AM
IS: Naphthalene-d8	105	0	50-200	0		%REC	10	08/09/16 10:57 AM
IS: Perylene-d12	117	0	50-200	0		%REC	10	08/09/16 10:57 AM
IS: Phenanthrene-d10	94.6	0	50-200	0		%REC	10	08/09/16 10:57 AM
Surr: 2-Fluorobiphenyl	79.9	0	46-115	0		%REC	10	08/09/16 10:57 AM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU156(0-2)-B
Project:	Laredo SGR	**Lab ID:**	1607317-05
Project No:	04285081.0000.00044	**Collection Date:**	07/27/16 10:24 AM
Lab Order:	1607317	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	88.0	0	58-133	0		%REC	10	08/09/16 10:57 AM

Qualifiers:	*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
	C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
	E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
	MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
	RL	Reporting Limit	S	Spike Recovery outside control limits
	N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU156(2-4)-B
Project:	Laredo SGR	**Lab ID:**	1607317-06
Project No:	04285081.0000.00044	**Collection Date:**	07/27/16 10:26 AM
Lab Order:	1607317	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **CVD**
Lead	9.06	0.0885	0.265	0.133		mg/Kg-dry	5	08/10/16 07:29 PM
IS: Bismuth	77.8	0	30-120	0		%REC	5	08/10/16 07:29 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0746	0.0498	0.0995	0.0746	U	mg/Kg-dry	10	08/09/16 11:37 AM
Acenaphthylene	0.0746	0.0498	0.0995	0.0746	U	mg/Kg-dry	10	08/09/16 11:37 AM
Anthracene	0.0746	0.0498	0.0995	0.0746	U	mg/Kg-dry	10	08/09/16 11:37 AM
Benzo[a]anthracene	0.0746	0.0498	0.0995	0.0746	U	mg/Kg-dry	10	08/09/16 11:37 AM
Benzo[a]pyrene	0.0746	0.0498	0.0995	0.0746	U	mg/Kg-dry	10	08/09/16 11:37 AM
Benzo[b]fluoranthene	0.0746	0.0498	0.0995	0.0746	U	mg/Kg-dry	10	08/09/16 11:37 AM
Benzo[e]pyrene	0.0746	0.0498	0.0995	0.0746	U	mg/Kg-dry	10	08/09/16 11:37 AM
Benzo[g,h,i]perylene	0.0746	0.0498	0.0995	0.0746	U	mg/Kg-dry	10	08/09/16 11:37 AM
Benzo[j]fluoranthene	0.0746	0.0498	0.0995	0.0746	NU	mg/Kg-dry	10	08/09/16 11:37 AM
Benzo[k]fluoranthene	0.0746	0.0498	0.0995	0.0746	U	mg/Kg-dry	10	08/09/16 11:37 AM
Chrysene	0.0746	0.0498	0.0995	0.0746	U	mg/Kg-dry	10	08/09/16 11:37 AM
Dibenz[a,h]anthracene	0.0746	0.0498	0.0995	0.0746	U	mg/Kg-dry	10	08/09/16 11:37 AM
Fluoranthene	0.0746	0.0498	0.0995	0.0746	U	mg/Kg-dry	10	08/09/16 11:37 AM
Fluorene	0.0746	0.0498	0.0995	0.0746	U	mg/Kg-dry	10	08/09/16 11:37 AM
Indeno[1,2,3-cd]pyrene	0.0746	0.0498	0.0995	0.0746	U	mg/Kg-dry	10	08/09/16 11:37 AM
Phenanthrene	0.0746	0.0498	0.0995	0.0746	U	mg/Kg-dry	10	08/09/16 11:37 AM
Pyrene	0.0746	0.0498	0.0995	0.0746	U	mg/Kg-dry	10	08/09/16 11:37 AM
IS: Acenaphthene-d10	139	0	50-200	0		%REC	10	08/09/16 11:37 AM
IS: Chrysene-d12	119	0	50-200	0		%REC	10	08/09/16 11:37 AM
IS: Naphthalene-d8	110	0	50-200	0		%REC	10	08/09/16 11:37 AM
IS: Perylene-d12	122	0	50-200	0		%REC	10	08/09/16 11:37 AM
IS: Phenanthrene-d10	101	0	50-200	0		%REC	10	08/09/16 11:37 AM
Surr: 2-Fluorobiphenyl	74.2	0	46-115	0		%REC	10	08/09/16 11:37 AM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU156(2-4)-B
Project:	Laredo SGR	**Lab ID:**	1607317-06
Project No:	04285081.0000.00044	**Collection Date:**	07/27/16 10:26 AM
Lab Order:	1607317	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	82.1	0	58-133	0		%REC	10	08/09/16 11:37 AM

Qualifiers:	*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
	C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
	E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
	MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
	RL	Reporting Limit	S	Spike Recovery outside control limits
	N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU156(4-6)-B
Project:	Laredo SGR	**Lab ID:**	1607317-07
Project No:	04285081.0000.00044	**Collection Date:**	07/27/16 10:28 AM
Lab Order:	1607317	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **CVD**
Lead	7.06	0.0926	0.278	0.139		mg/Kg-dry	5	08/10/16 07:35 PM
IS: Bismuth	80.2	0	30-120	0		%REC	5	08/10/16 07:35 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0730	0.0487	0.0974	0.0730	U	mg/Kg-dry	10	08/09/16 12:18 PM
Acenaphthylene	0.0730	0.0487	0.0974	0.0730	U	mg/Kg-dry	10	08/09/16 12:18 PM
Anthracene	0.0730	0.0487	0.0974	0.0730	U	mg/Kg-dry	10	08/09/16 12:18 PM
Benzo[a]anthracene	0.0730	0.0487	0.0974	0.0730	U	mg/Kg-dry	10	08/09/16 12:18 PM
Benzo[a]pyrene	0.0730	0.0487	0.0974	0.0730	U	mg/Kg-dry	10	08/09/16 12:18 PM
Benzo[b]fluoranthene	0.0730	0.0487	0.0974	0.0730	U	mg/Kg-dry	10	08/09/16 12:18 PM
Benzo[e]pyrene	0.0730	0.0487	0.0974	0.0730	U	mg/Kg-dry	10	08/09/16 12:18 PM
Benzo[g,h,i]perylene	0.0730	0.0487	0.0974	0.0730	U	mg/Kg-dry	10	08/09/16 12:18 PM
Benzo[j]fluoranthene	0.0730	0.0487	0.0974	0.0730	NU	mg/Kg-dry	10	08/09/16 12:18 PM
Benzo[k]fluoranthene	0.0730	0.0487	0.0974	0.0730	U	mg/Kg-dry	10	08/09/16 12:18 PM
Chrysene	0.0730	0.0487	0.0974	0.0730	U	mg/Kg-dry	10	08/09/16 12:18 PM
Dibenz[a,h]anthracene	0.0730	0.0487	0.0974	0.0730	U	mg/Kg-dry	10	08/09/16 12:18 PM
Fluoranthene	0.0730	0.0487	0.0974	0.0730	U	mg/Kg-dry	10	08/09/16 12:18 PM
Fluorene	0.0730	0.0487	0.0974	0.0730	U	mg/Kg-dry	10	08/09/16 12:18 PM
Indeno[1,2,3-cd]pyrene	0.0730	0.0487	0.0974	0.0730	U	mg/Kg-dry	10	08/09/16 12:18 PM
Phenanthrene	0.0730	0.0487	0.0974	0.0730	U	mg/Kg-dry	10	08/09/16 12:18 PM
Pyrene	0.0730	0.0487	0.0974	0.0730	U	mg/Kg-dry	10	08/09/16 12:18 PM
IS: Acenaphthene-d10	130	0	50-200	0		%REC	10	08/09/16 12:18 PM
IS: Chrysene-d12	114	0	50-200	0		%REC	10	08/09/16 12:18 PM
IS: Naphthalene-d8	102	0	50-200	0		%REC	10	08/09/16 12:18 PM
IS: Perylene-d12	116	0	50-200	0		%REC	10	08/09/16 12:18 PM
IS: Phenanthrene-d10	94.8	0	50-200	0		%REC	10	08/09/16 12:18 PM
Surr: 2-Fluorobiphenyl	78.8	0	46-115	0		%REC	10	08/09/16 12:18 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU156(4-6)-B
Project:	Laredo SGR	**Lab ID:**	1607317-07
Project No:	04285081.0000.00044	**Collection Date:**	07/27/16 10:28 AM
Lab Order:	1607317	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	87.3	0	58-133	0		%REC	10	08/09/16 12:18 PM

Qualifiers:	*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
	C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
	E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
	MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
	RL	Reporting Limit	S	Spike Recovery outside control limits
	N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU156(6-8)-B
Project:	Laredo SGR	**Lab ID:**	1607317-08
Project No:	04285081.0000.00044	**Collection Date:**	07/27/16 10:30 AM
Lab Order:	1607317	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **CVD**
Lead	5.37	0.0935	0.280	0.140		mg/Kg-dry	5	08/10/16 08:41 PM
IS: Bismuth	74.8	0	30-120	0		%REC	5	08/10/16 08:41 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0715	0.0477	0.0953	0.0715	U	mg/Kg-dry	10	08/09/16 12:59 PM
Acenaphthylene	0.0715	0.0477	0.0953	0.0715	U	mg/Kg-dry	10	08/09/16 12:59 PM
Anthracene	0.0715	0.0477	0.0953	0.0715	U	mg/Kg-dry	10	08/09/16 12:59 PM
Benzo[a]anthracene	0.0715	0.0477	0.0953	0.0715	U	mg/Kg-dry	10	08/09/16 12:59 PM
Benzo[a]pyrene	0.0715	0.0477	0.0953	0.0715	U	mg/Kg-dry	10	08/09/16 12:59 PM
Benzo[b]fluoranthene	0.0715	0.0477	0.0953	0.0715	U	mg/Kg-dry	10	08/09/16 12:59 PM
Benzo[e]pyrene	0.0715	0.0477	0.0953	0.0715	U	mg/Kg-dry	10	08/09/16 12:59 PM
Benzo[g,h,i]perylene	0.0715	0.0477	0.0953	0.0715	U	mg/Kg-dry	10	08/09/16 12:59 PM
Benzo[j]fluoranthene	0.0715	0.0477	0.0953	0.0715	NU	mg/Kg-dry	10	08/09/16 12:59 PM
Benzo[k]fluoranthene	0.0715	0.0477	0.0953	0.0715	U	mg/Kg-dry	10	08/09/16 12:59 PM
Chrysene	0.0715	0.0477	0.0953	0.0715	U	mg/Kg-dry	10	08/09/16 12:59 PM
Dibenz[a,h]anthracene	0.0715	0.0477	0.0953	0.0715	U	mg/Kg-dry	10	08/09/16 12:59 PM
Fluoranthene	0.0715	0.0477	0.0953	0.0715	U	mg/Kg-dry	10	08/09/16 12:59 PM
Fluorene	0.0715	0.0477	0.0953	0.0715	U	mg/Kg-dry	10	08/09/16 12:59 PM
Indeno[1,2,3-cd]pyrene	0.0715	0.0477	0.0953	0.0715	U	mg/Kg-dry	10	08/09/16 12:59 PM
Phenanthrene	0.0715	0.0477	0.0953	0.0715	U	mg/Kg-dry	10	08/09/16 12:59 PM
Pyrene	0.0715	0.0477	0.0953	0.0715	U	mg/Kg-dry	10	08/09/16 12:59 PM
IS: Acenaphthene-d10	138	0	50-200	0		%REC	10	08/09/16 12:59 PM
IS: Chrysene-d12	116	0	50-200	0		%REC	10	08/09/16 12:59 PM
IS: Naphthalene-d8	107	0	50-200	0		%REC	10	08/09/16 12:59 PM
IS: Perylene-d12	118	0	50-200	0		%REC	10	08/09/16 12:59 PM
IS: Phenanthrene-d10	99.7	0	50-200	0		%REC	10	08/09/16 12:59 PM
Surr: 2-Fluorobiphenyl	71.4	0	46-115	0		%REC	10	08/09/16 12:59 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU156(6-8)-B
Project:	Laredo SGR	**Lab ID:**	1607317-08
Project No:	04285081.0000.00044	**Collection Date:**	07/27/16 10:30 AM
Lab Order:	1607317	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	80.1	0	58-133	0		%REC	10	08/09/16 12:59 PM

Qualifiers:	*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
	C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
	E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
	MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
	RL	Reporting Limit	S	Spike Recovery outside control limits
	N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *19-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU156(0-2)-C
Project:	Laredo SGR	**Lab ID:**	1607317-09
Project No:	04285081.0000.00044	**Collection Date:**	07/27/16 10:33 AM
Lab Order:	1607317	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **CVD**
Lead	30.6	0.0935	0.280	0.140		mg/Kg-dry	5	08/10/16 08:30 PM
IS: Bismuth	72.4	0	30-120	0		%REC	5	08/10/16 08:30 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0730	0.0487	0.0974	0.0730	U	mg/Kg-dry	10	08/09/16 01:40 PM
Acenaphthylene	0.0730	0.0487	0.0974	0.0730	U	mg/Kg-dry	10	08/09/16 01:40 PM
Anthracene	0.0730	0.0487	0.0974	0.0730	U	mg/Kg-dry	10	08/09/16 01:40 PM
Benzo[a]anthracene	0.123	0.0487	0.0974	0.0730		mg/Kg-dry	10	08/09/16 01:40 PM
Benzo[a]pyrene	0.164	0.0487	0.0974	0.0730		mg/Kg-dry	10	08/09/16 01:40 PM
Benzo[b]fluoranthene	0.157	0.0487	0.0974	0.0730		mg/Kg-dry	10	08/09/16 01:40 PM
Benzo[e]pyrene	0.127	0.0487	0.0974	0.0730		mg/Kg-dry	10	08/09/16 01:40 PM
Benzo[g,h,i]perylene	0.144	0.0487	0.0974	0.0730		mg/Kg-dry	10	08/09/16 01:40 PM
Benzo[j]fluoranthene	0.0802	0.0487	0.0974	0.0730	JN	mg/Kg-dry	10	08/09/16 01:40 PM
Benzo[k]fluoranthene	0.0768	0.0487	0.0974	0.0730	J	mg/Kg-dry	10	08/09/16 01:40 PM
Chrysene	0.146	0.0487	0.0974	0.0730		mg/Kg-dry	10	08/09/16 01:40 PM
Dibenz[a,h]anthracene	0.0730	0.0487	0.0974	0.0730	U	mg/Kg-dry	10	08/09/16 01:40 PM
Fluoranthene	0.212	0.0487	0.0974	0.0730		mg/Kg-dry	10	08/09/16 01:40 PM
Fluorene	0.0730	0.0487	0.0974	0.0730	U	mg/Kg-dry	10	08/09/16 01:40 PM
Indeno[1,2,3-cd]pyrene	0.122	0.0487	0.0974	0.0730		mg/Kg-dry	10	08/09/16 01:40 PM
Phenanthrene	0.100	0.0487	0.0974	0.0730		mg/Kg-dry	10	08/09/16 01:40 PM
Pyrene	0.182	0.0487	0.0974	0.0730		mg/Kg-dry	10	08/09/16 01:40 PM
IS: Acenaphthene-d10	131	0	50-200	0		%REC	10	08/09/16 01:40 PM
IS: Chrysene-d12	113	0	50-200	0		%REC	10	08/09/16 01:40 PM
IS: Naphthalene-d8	101	0	50-200	0		%REC	10	08/09/16 01:40 PM
IS: Perylene-d12	115	0	50-200	0		%REC	10	08/09/16 01:40 PM
IS: Phenanthrene-d10	95.4	0	50-200	0		%REC	10	08/09/16 01:40 PM
Surr: 2-Fluorobiphenyl	77.0	0	46-115	0		%REC	10	08/09/16 01:40 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU156(0-2)-C
Project:	Laredo SGR	**Lab ID:**	1607317-09
Project No:	04285081.0000.00044	**Collection Date:**	07/27/16 10:33 AM
Lab Order:	1607317	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	85.7	0	58-133	0		%REC	10	08/09/16 01:40 PM

Qualifiers:	*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
	C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
	E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
	MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
	RL	Reporting Limit	S	Spike Recovery outside control limits
	N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU156(2-4)-C
Project:	Laredo SGR	**Lab ID:**	1607317-10
Project No:	04285081.0000.00044	**Collection Date:**	07/27/16 10:35 AM
Lab Order:	1607317	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **CVD**
Lead	8.23	0.0862	0.259	0.129		mg/Kg-dry	5	08/10/16 08:47 PM
IS: Bismuth	76.5	0	30-120	0		%REC	5	08/10/16 08:47 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0729	0.0486	0.0972	0.0729	U	mg/Kg-dry	10	08/09/16 02:22 PM
Acenaphthylene	0.0729	0.0486	0.0972	0.0729	U	mg/Kg-dry	10	08/09/16 02:22 PM
Anthracene	0.0729	0.0486	0.0972	0.0729	U	mg/Kg-dry	10	08/09/16 02:22 PM
Benzo[a]anthracene	0.0729	0.0486	0.0972	0.0729	U	mg/Kg-dry	10	08/09/16 02:22 PM
Benzo[a]pyrene	0.0729	0.0486	0.0972	0.0729	U	mg/Kg-dry	10	08/09/16 02:22 PM
Benzo[b]fluoranthene	0.0729	0.0486	0.0972	0.0729	U	mg/Kg-dry	10	08/09/16 02:22 PM
Benzo[e]pyrene	0.0729	0.0486	0.0972	0.0729	U	mg/Kg-dry	10	08/09/16 02:22 PM
Benzo[g,h,i]perylene	0.0729	0.0486	0.0972	0.0729	U	mg/Kg-dry	10	08/09/16 02:22 PM
Benzo[j]fluoranthene	0.0729	0.0486	0.0972	0.0729	NU	mg/Kg-dry	10	08/09/16 02:22 PM
Benzo[k]fluoranthene	0.0729	0.0486	0.0972	0.0729	U	mg/Kg-dry	10	08/09/16 02:22 PM
Chrysene	0.0729	0.0486	0.0972	0.0729	U	mg/Kg-dry	10	08/09/16 02:22 PM
Dibenz[a,h]anthracene	0.0729	0.0486	0.0972	0.0729	U	mg/Kg-dry	10	08/09/16 02:22 PM
Fluoranthene	0.0729	0.0486	0.0972	0.0729	U	mg/Kg-dry	10	08/09/16 02:22 PM
Fluorene	0.0729	0.0486	0.0972	0.0729	U	mg/Kg-dry	10	08/09/16 02:22 PM
Indeno[1,2,3-cd]pyrene	0.0729	0.0486	0.0972	0.0729	U	mg/Kg-dry	10	08/09/16 02:22 PM
Phenanthrene	0.0729	0.0486	0.0972	0.0729	U	mg/Kg-dry	10	08/09/16 02:22 PM
Pyrene	0.0729	0.0486	0.0972	0.0729	U	mg/Kg-dry	10	08/09/16 02:22 PM
IS: Acenaphthene-d10	140	0	50-200	0		%REC	10	08/09/16 02:22 PM
IS: Chrysene-d12	120	0	50-200	0		%REC	10	08/09/16 02:22 PM
IS: Naphthalene-d8	108	0	50-200	0		%REC	10	08/09/16 02:22 PM
IS: Perylene-d12	123	0	50-200	0		%REC	10	08/09/16 02:22 PM
IS: Phenanthrene-d10	100	0	50-200	0		%REC	10	08/09/16 02:22 PM
Surr: 2-Fluorobiphenyl	71.0	0	46-115	0		%REC	10	08/09/16 02:22 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU156(2-4)-C
Project:	Laredo SGR	**Lab ID:**	1607317-10
Project No:	04285081.0000.00044	**Collection Date:**	07/27/16 10:35 AM
Lab Order:	1607317	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	79.5	0	58-133	0		%REC	10	08/09/16 02:22 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *19-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU156(4-6)-C
Project:	Laredo SGR	**Lab ID:**	1607317-11
Project No:	04285081.0000.00044	**Collection Date:**	07/27/16 10:37 AM
Lab Order:	1607317	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **CVD**
Lead	7.25	0.0952	0.286	0.143		mg/Kg-dry	5	08/10/16 08:53 PM
IS: Bismuth	76.8	0	30-120	0		%REC	5	08/10/16 08:53 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0737	0.0491	0.0982	0.0737	U	mg/Kg-dry	10	08/09/16 03:03 PM
Acenaphthylene	0.0737	0.0491	0.0982	0.0737	U	mg/Kg-dry	10	08/09/16 03:03 PM
Anthracene	0.0737	0.0491	0.0982	0.0737	U	mg/Kg-dry	10	08/09/16 03:03 PM
Benzo[a]anthracene	0.0737	0.0491	0.0982	0.0737	U	mg/Kg-dry	10	08/09/16 03:03 PM
Benzo[a]pyrene	0.0737	0.0491	0.0982	0.0737	U	mg/Kg-dry	10	08/09/16 03:03 PM
Benzo[b]fluoranthene	0.0737	0.0491	0.0982	0.0737	U	mg/Kg-dry	10	08/09/16 03:03 PM
Benzo[e]pyrene	0.0737	0.0491	0.0982	0.0737	U	mg/Kg-dry	10	08/09/16 03:03 PM
Benzo[g,h,i]perylene	0.0737	0.0491	0.0982	0.0737	U	mg/Kg-dry	10	08/09/16 03:03 PM
Benzo[j]fluoranthene	0.0737	0.0491	0.0982	0.0737	NU	mg/Kg-dry	10	08/09/16 03:03 PM
Benzo[k]fluoranthene	0.0737	0.0491	0.0982	0.0737	U	mg/Kg-dry	10	08/09/16 03:03 PM
Chrysene	0.0737	0.0491	0.0982	0.0737	U	mg/Kg-dry	10	08/09/16 03:03 PM
Dibenz[a,h]anthracene	0.0737	0.0491	0.0982	0.0737	U	mg/Kg-dry	10	08/09/16 03:03 PM
Fluoranthene	0.0737	0.0491	0.0982	0.0737	U	mg/Kg-dry	10	08/09/16 03:03 PM
Fluorene	0.0737	0.0491	0.0982	0.0737	U	mg/Kg-dry	10	08/09/16 03:03 PM
Indeno[1,2,3-cd]pyrene	0.0737	0.0491	0.0982	0.0737	U	mg/Kg-dry	10	08/09/16 03:03 PM
Phenanthrene	0.0737	0.0491	0.0982	0.0737	U	mg/Kg-dry	10	08/09/16 03:03 PM
Pyrene	0.0737	0.0491	0.0982	0.0737	U	mg/Kg-dry	10	08/09/16 03:03 PM
IS: Acenaphthene-d10	138	0	50-200	0		%REC	10	08/09/16 03:03 PM
IS: Chrysene-d12	119	0	50-200	0		%REC	10	08/09/16 03:03 PM
IS: Naphthalene-d8	105	0	50-200	0		%REC	10	08/09/16 03:03 PM
IS: Perylene-d12	121	0	50-200	0		%REC	10	08/09/16 03:03 PM
IS: Phenanthrene-d10	99.6	0	50-200	0		%REC	10	08/09/16 03:03 PM
Surr: 2-Fluorobiphenyl	71.5	0	46-115	0		%REC	10	08/09/16 03:03 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU156(4-6)-C
Project:	Laredo SGR	**Lab ID:**	1607317-11
Project No:	04285081.0000.00044	**Collection Date:**	07/27/16 10:37 AM
Lab Order:	1607317	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	80.5	0	58-133	0		%REC	10	08/09/16 03:03 PM

Qualifiers:	*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
	C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
	E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
	MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
	RL	Reporting Limit	S	Spike Recovery outside control limits
	N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU156(6-8)-C
Project:	Laredo SGR	**Lab ID:**	1607317-12
Project No:	04285081.0000.00044	**Collection Date:**	07/27/16 10:39 AM
Lab Order:	1607317	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **CVD**
Lead	5.14	0.0885	0.265	0.133		mg/Kg-dry	5	08/10/16 08:59 PM
IS: Bismuth	73.6	0	30-120	0		%REC	5	08/10/16 08:59 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0749	0.0500	0.0999	0.0749	U	mg/Kg-dry	10	08/09/16 03:45 PM
Acenaphthylene	0.0749	0.0500	0.0999	0.0749	U	mg/Kg-dry	10	08/09/16 03:45 PM
Anthracene	0.0749	0.0500	0.0999	0.0749	U	mg/Kg-dry	10	08/09/16 03:45 PM
Benzo[a]anthracene	0.0749	0.0500	0.0999	0.0749	U	mg/Kg-dry	10	08/09/16 03:45 PM
Benzo[a]pyrene	0.0749	0.0500	0.0999	0.0749	U	mg/Kg-dry	10	08/09/16 03:45 PM
Benzo[b]fluoranthene	0.0749	0.0500	0.0999	0.0749	U	mg/Kg-dry	10	08/09/16 03:45 PM
Benzo[e]pyrene	0.0749	0.0500	0.0999	0.0749	U	mg/Kg-dry	10	08/09/16 03:45 PM
Benzo[g,h,i]perylene	0.0749	0.0500	0.0999	0.0749	U	mg/Kg-dry	10	08/09/16 03:45 PM
Benzo[j]fluoranthene	0.0749	0.0500	0.0999	0.0749	NU	mg/Kg-dry	10	08/09/16 03:45 PM
Benzo[k]fluoranthene	0.0749	0.0500	0.0999	0.0749	U	mg/Kg-dry	10	08/09/16 03:45 PM
Chrysene	0.0749	0.0500	0.0999	0.0749	U	mg/Kg-dry	10	08/09/16 03:45 PM
Dibenz[a,h]anthracene	0.0749	0.0500	0.0999	0.0749	U	mg/Kg-dry	10	08/09/16 03:45 PM
Fluoranthene	0.0749	0.0500	0.0999	0.0749	U	mg/Kg-dry	10	08/09/16 03:45 PM
Fluorene	0.0749	0.0500	0.0999	0.0749	U	mg/Kg-dry	10	08/09/16 03:45 PM
Indeno[1,2,3-cd]pyrene	0.0749	0.0500	0.0999	0.0749	U	mg/Kg-dry	10	08/09/16 03:45 PM
Phenanthrene	0.0749	0.0500	0.0999	0.0749	U	mg/Kg-dry	10	08/09/16 03:45 PM
Pyrene	0.0749	0.0500	0.0999	0.0749	U	mg/Kg-dry	10	08/09/16 03:45 PM
IS: Acenaphthene-d10	131	0	50-200	0		%REC	10	08/09/16 03:45 PM
IS: Chrysene-d12	115	0	50-200	0		%REC	10	08/09/16 03:45 PM
IS: Naphthalene-d8	102	0	50-200	0		%REC	10	08/09/16 03:45 PM
IS: Perylene-d12	116	0	50-200	0		%REC	10	08/09/16 03:45 PM
IS: Phenanthrene-d10	94.3	0	50-200	0		%REC	10	08/09/16 03:45 PM
Surr: 2-Fluorobiphenyl	77.5	0	46-115	0		%REC	10	08/09/16 03:45 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU156(6-8)-C
Project:	Laredo SGR	**Lab ID:**	1607317-12
Project No:	04285081.0000.00044	**Collection Date:**	07/27/16 10:39 AM
Lab Order:	1607317	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	84.5	0	58-133	0		%REC	10	08/09/16 03:45 PM

Qualifiers:	*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
	C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
	E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
	MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
	RL	Reporting Limit	S	Spike Recovery outside control limits
	N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	EB01(20160727)
Project:	Laredo SGR	**Lab ID:**	1607317-13
Project No:	04285081.0000.00044	**Collection Date:**	07/27/16 10:45 AM
Lab Order:	1607317	**Matrix:**	EQUIP BLANK

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER			**SW6020A**					Analyst: **CVD**
Lead	0.000900	0.000300	0.00100	0.000900	U	mg/L	1	08/10/16 02:16 AM
IS: Bismuth	88.8	0	30-120	0		%REC	1	08/10/16 02:16 AM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Acenaphthene	0.0000796	0.0000498	0.0000996	0.0000796	U	mg/L	1	08/03/16 07:06 PM
Acenaphthylene	0.0000796	0.0000498	0.0000996	0.0000796	U	mg/L	1	08/03/16 07:06 PM
Anthracene	0.0000796	0.0000498	0.0000996	0.0000796	U	mg/L	1	08/03/16 07:06 PM
Benzo[a]anthracene	0.0000796	0.0000498	0.0000996	0.0000796	U	mg/L	1	08/03/16 07:06 PM
Benzo[a]pyrene	0.0000796	0.0000498	0.0000996	0.0000796	U	mg/L	1	08/03/16 07:06 PM
Benzo[b]fluoranthene	0.0000796	0.0000498	0.0000996	0.0000796	U	mg/L	1	08/03/16 07:06 PM
Benzo[e]pyrene	0.0000796	0.0000498	0.0000996	0.0000796	U	mg/L	1	08/03/16 07:06 PM
Benzo[g,h,i]perylene	0.0000796	0.0000498	0.0000996	0.0000796	U	mg/L	1	08/03/16 07:06 PM
Benzo[j]fluoranthene	0.0000796	0.0000498	0.0000996	0.0000796	NU	mg/L	1	08/03/16 07:06 PM
Benzo[k]fluoranthene	0.0000796	0.0000498	0.0000996	0.0000796	U	mg/L	1	08/03/16 07:06 PM
Chrysene	0.0000796	0.0000498	0.0000996	0.0000796	U	mg/L	1	08/03/16 07:06 PM
Dibenz[a,h]anthracene	0.0000796	0.0000498	0.0000996	0.0000796	U	mg/L	1	08/03/16 07:06 PM
Fluoranthene	0.0000796	0.0000498	0.0000996	0.0000796	U	mg/L	1	08/03/16 07:06 PM
Fluorene	0.0000796	0.0000498	0.0000996	0.0000796	U	mg/L	1	08/03/16 07:06 PM
Indeno[1,2,3-cd]pyrene	0.0000796	0.0000498	0.0000996	0.0000796	U	mg/L	1	08/03/16 07:06 PM
Phenanthrene	0.0000796	0.0000498	0.0000996	0.0000796	U	mg/L	1	08/03/16 07:06 PM
Pyrene	0.0000796	0.0000498	0.0000996	0.0000796	U	mg/L	1	08/03/16 07:06 PM
IS: Acenaphthene-d10	98.7	0	50-200	0		%REC	1	08/03/16 07:06 PM
IS: Chrysene-d12	86.4	0	50-200	0		%REC	1	08/03/16 07:06 PM
IS: Naphthalene-d8	85.4	0	50-200	0		%REC	1	08/03/16 07:06 PM
IS: Perylene-d12	88.4	0	50-200	0		%REC	1	08/03/16 07:06 PM
IS: Phenanthrene-d10	103	0	50-200	0		%REC	1	08/03/16 07:06 PM
Surr: 2-Fluorobiphenyl	77.7	0	53-106	0		%REC	1	08/03/16 07:06 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	EB01(20160727)
Project:	Laredo SGR	**Lab ID:**	1607317-13
Project No:	04285081.0000.00044	**Collection Date:**	07/27/16 10:45 AM
Lab Order:	1607317	**Matrix:**	EQUIP BLANK

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Surr: 4-Terphenyl-d14	63.8	0	58-132	0		%REC	1	08/03/16 07:06 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *19-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU080(0-2)-A
Project:	Laredo SGR	**Lab ID:**	1607317-14
Project No:	04285081.0000.00044	**Collection Date:**	07/27/16 12:44 PM
Lab Order:	1607317	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **CVD**
Lead	58.0	0.0980	0.294	0.147		mg/Kg-dry	5	08/10/16 09:05 PM
IS: Bismuth	74.6	0	30-120	0		%REC	5	08/10/16 09:05 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0735	0.0490	0.0979	0.0735	U	mg/Kg-dry	10	08/09/16 04:26 PM
Acenaphthylene	0.0735	0.0490	0.0979	0.0735	U	mg/Kg-dry	10	08/09/16 04:26 PM
Anthracene	0.0735	0.0490	0.0979	0.0735	U	mg/Kg-dry	10	08/09/16 04:26 PM
Benzo[a]anthracene	0.201	0.0490	0.0979	0.0735		mg/Kg-dry	10	08/09/16 04:26 PM
Benzo[a]pyrene	0.304	0.0490	0.0979	0.0735		mg/Kg-dry	10	08/09/16 04:26 PM
Benzo[b]fluoranthene	0.302	0.0490	0.0979	0.0735		mg/Kg-dry	10	08/09/16 04:26 PM
Benzo[e]pyrene	0.245	0.0490	0.0979	0.0735		mg/Kg-dry	10	08/09/16 04:26 PM
Benzo[g,h,i]perylene	0.274	0.0490	0.0979	0.0735		mg/Kg-dry	10	08/09/16 04:26 PM
Benzo[j]fluoranthene	0.146	0.0490	0.0979	0.0735	N	mg/Kg-dry	10	08/09/16 04:26 PM
Benzo[k]fluoranthene	0.151	0.0490	0.0979	0.0735		mg/Kg-dry	10	08/09/16 04:26 PM
Chrysene	0.261	0.0490	0.0979	0.0735		mg/Kg-dry	10	08/09/16 04:26 PM
Dibenz[a,h]anthracene	0.0604	0.0490	0.0979	0.0735	J	mg/Kg-dry	10	08/09/16 04:26 PM
Fluoranthene	0.341	0.0490	0.0979	0.0735		mg/Kg-dry	10	08/09/16 04:26 PM
Fluorene	0.0735	0.0490	0.0979	0.0735	U	mg/Kg-dry	10	08/09/16 04:26 PM
Indeno[1,2,3-cd]pyrene	0.228	0.0490	0.0979	0.0735		mg/Kg-dry	10	08/09/16 04:26 PM
Phenanthrene	0.236	0.0490	0.0979	0.0735		mg/Kg-dry	10	08/09/16 04:26 PM
Pyrene	0.294	0.0490	0.0979	0.0735		mg/Kg-dry	10	08/09/16 04:26 PM
IS: Acenaphthene-d10	145	0	50-200	0		%REC	10	08/09/16 04:26 PM
IS: Chrysene-d12	122	0	50-200	0		%REC	10	08/09/16 04:26 PM
IS: Naphthalene-d8	111	0	50-200	0		%REC	10	08/09/16 04:26 PM
IS: Perylene-d12	124	0	50-200	0		%REC	10	08/09/16 04:26 PM
IS: Phenanthrene-d10	105	0	50-200	0		%REC	10	08/09/16 04:26 PM
Surr: 2-Fluorobiphenyl	69.7	0	46-115	0		%REC	10	08/09/16 04:26 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU080(0-2)-A
Project:	Laredo SGR	**Lab ID:**	1607317-14
Project No:	04285081.0000.00044	**Collection Date:**	07/27/16 12:44 PM
Lab Order:	1607317	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	76.0	0	58-133	0		%REC	10	08/09/16 04:26 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU080(2-4)-A
Project:	Laredo SGR	**Lab ID:**	1607317-15
Project No:	04285081.0000.00044	**Collection Date:**	07/27/16 12:46 PM
Lab Order:	1607317	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **CVD**
Lead	10.7	0.0935	0.280	0.140		mg/Kg-dry	5	08/10/16 09:17 PM
IS: Bismuth	73.2	0	30-120	0		%REC	5	08/10/16 09:17 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0729	0.0486	0.0972	0.0729	U	mg/Kg-dry	10	08/09/16 05:07 PM
Acenaphthylene	0.0729	0.0486	0.0972	0.0729	U	mg/Kg-dry	10	08/09/16 05:07 PM
Anthracene	0.0729	0.0486	0.0972	0.0729	U	mg/Kg-dry	10	08/09/16 05:07 PM
Benzo[a]anthracene	0.0729	0.0486	0.0972	0.0729	U	mg/Kg-dry	10	08/09/16 05:07 PM
Benzo[a]pyrene	0.0729	0.0486	0.0972	0.0729	U	mg/Kg-dry	10	08/09/16 05:07 PM
Benzo[b]fluoranthene	0.0729	0.0486	0.0972	0.0729	U	mg/Kg-dry	10	08/09/16 05:07 PM
Benzo[e]pyrene	0.0729	0.0486	0.0972	0.0729	U	mg/Kg-dry	10	08/09/16 05:07 PM
Benzo[g,h,i]perylene	0.0729	0.0486	0.0972	0.0729	U	mg/Kg-dry	10	08/09/16 05:07 PM
Benzo[j]fluoranthene	0.0729	0.0486	0.0972	0.0729	NU	mg/Kg-dry	10	08/09/16 05:07 PM
Benzo[k]fluoranthene	0.0729	0.0486	0.0972	0.0729	U	mg/Kg-dry	10	08/09/16 05:07 PM
Chrysene	0.0729	0.0486	0.0972	0.0729	U	mg/Kg-dry	10	08/09/16 05:07 PM
Dibenz[a,h]anthracene	0.0729	0.0486	0.0972	0.0729	U	mg/Kg-dry	10	08/09/16 05:07 PM
Fluoranthene	0.0729	0.0486	0.0972	0.0729	U	mg/Kg-dry	10	08/09/16 05:07 PM
Fluorene	0.0729	0.0486	0.0972	0.0729	U	mg/Kg-dry	10	08/09/16 05:07 PM
Indeno[1,2,3-cd]pyrene	0.0729	0.0486	0.0972	0.0729	U	mg/Kg-dry	10	08/09/16 05:07 PM
Phenanthrene	0.0729	0.0486	0.0972	0.0729	U	mg/Kg-dry	10	08/09/16 05:07 PM
Pyrene	0.0729	0.0486	0.0972	0.0729	U	mg/Kg-dry	10	08/09/16 05:07 PM
IS: Acenaphthene-d10	141	0	50-200	0		%REC	10	08/09/16 05:07 PM
IS: Chrysene-d12	118	0	50-200	0		%REC	10	08/09/16 05:07 PM
IS: Naphthalene-d8	110	0	50-200	0		%REC	10	08/09/16 05:07 PM
IS: Perylene-d12	122	0	50-200	0		%REC	10	08/09/16 05:07 PM
IS: Phenanthrene-d10	101	0	50-200	0		%REC	10	08/09/16 05:07 PM
Surr: 2-Fluorobiphenyl	71.6	0	46-115	0		%REC	10	08/09/16 05:07 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU080(2-4)-A
Project:	Laredo SGR	**Lab ID:**	1607317-15
Project No:	04285081.0000.00044	**Collection Date:**	07/27/16 12:46 PM
Lab Order:	1607317	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	77.8	0	58-133	0		%REC	10	08/09/16 05:07 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *19-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU080(4-6)-A
Project:	Laredo SGR	**Lab ID:**	1607317-16
Project No:	04285081.0000.00044	**Collection Date:**	07/27/16 12:48 PM
Lab Order:	1607317	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **CVD**
Lead	6.81	0.0917	0.275	0.138		mg/Kg-dry	5	08/10/16 09:23 PM
IS: Bismuth	75.1	0	30-120	0		%REC	5	08/10/16 09:23 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/09/16 05:48 PM
Acenaphthylene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/09/16 05:48 PM
Anthracene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/09/16 05:48 PM
Benzo[a]anthracene	0.116	0.0496	0.0992	0.0744		mg/Kg-dry	10	08/09/16 05:48 PM
Benzo[a]pyrene	0.128	0.0496	0.0992	0.0744		mg/Kg-dry	10	08/09/16 05:48 PM
Benzo[b]fluoranthene	0.129	0.0496	0.0992	0.0744		mg/Kg-dry	10	08/09/16 05:48 PM
Benzo[e]pyrene	0.102	0.0496	0.0992	0.0744		mg/Kg-dry	10	08/09/16 05:48 PM
Benzo[g,h,i]perylene	0.105	0.0496	0.0992	0.0744		mg/Kg-dry	10	08/09/16 05:48 PM
Benzo[j]fluoranthene	0.0648	0.0496	0.0992	0.0744	JN	mg/Kg-dry	10	08/09/16 05:48 PM
Benzo[k]fluoranthene	0.0684	0.0496	0.0992	0.0744	J	mg/Kg-dry	10	08/09/16 05:48 PM
Chrysene	0.130	0.0496	0.0992	0.0744		mg/Kg-dry	10	08/09/16 05:48 PM
Dibenz[a,h]anthracene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/09/16 05:48 PM
Fluoranthene	0.202	0.0496	0.0992	0.0744		mg/Kg-dry	10	08/09/16 05:48 PM
Fluorene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/09/16 05:48 PM
Indeno[1,2,3-cd]pyrene	0.0853	0.0496	0.0992	0.0744	J	mg/Kg-dry	10	08/09/16 05:48 PM
Phenanthrene	0.107	0.0496	0.0992	0.0744		mg/Kg-dry	10	08/09/16 05:48 PM
Pyrene	0.171	0.0496	0.0992	0.0744		mg/Kg-dry	10	08/09/16 05:48 PM
IS: Acenaphthene-d10	137	0	50-200	0		%REC	10	08/09/16 05:48 PM
IS: Chrysene-d12	117	0	50-200	0		%REC	10	08/09/16 05:48 PM
IS: Naphthalene-d8	108	0	50-200	0		%REC	10	08/09/16 05:48 PM
IS: Perylene-d12	119	0	50-200	0		%REC	10	08/09/16 05:48 PM
IS: Phenanthrene-d10	99.5	0	50-200	0		%REC	10	08/09/16 05:48 PM
Surr: 2-Fluorobiphenyl	75.1	0	46-115	0		%REC	10	08/09/16 05:48 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU080(4-6)-A
Project:	Laredo SGR	**Lab ID:**	1607317-16
Project No:	04285081.0000.00044	**Collection Date:**	07/27/16 12:48 PM
Lab Order:	1607317	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	82.5	0	58-133	0		%REC	10	08/09/16 05:48 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *19-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU080(6-8)-A
Project:	Laredo SGR	**Lab ID:**	1607317-17
Project No:	04285081.0000.00044	**Collection Date:**	07/27/16 12:50 PM
Lab Order:	1607317	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **CVD**
Lead	4.15	0.0935	0.280	0.140		mg/Kg-dry	5	08/10/16 09:29 PM
IS: Bismuth	73.9	0	30-120	0		%REC	5	08/10/16 09:29 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0748	0.0499	0.0997	0.0748	U	mg/Kg-dry	10	08/09/16 06:28 PM
Acenaphthylene	0.0748	0.0499	0.0997	0.0748	U	mg/Kg-dry	10	08/09/16 06:28 PM
Anthracene	0.0748	0.0499	0.0997	0.0748	U	mg/Kg-dry	10	08/09/16 06:28 PM
Benzo[a]anthracene	0.0748	0.0499	0.0997	0.0748	U	mg/Kg-dry	10	08/09/16 06:28 PM
Benzo[a]pyrene	0.0748	0.0499	0.0997	0.0748	U	mg/Kg-dry	10	08/09/16 06:28 PM
Benzo[b]fluoranthene	0.0748	0.0499	0.0997	0.0748	U	mg/Kg-dry	10	08/09/16 06:28 PM
Benzo[e]pyrene	0.0748	0.0499	0.0997	0.0748	U	mg/Kg-dry	10	08/09/16 06:28 PM
Benzo[g,h,i]perylene	0.0748	0.0499	0.0997	0.0748	U	mg/Kg-dry	10	08/09/16 06:28 PM
Benzo[j]fluoranthene	0.0748	0.0499	0.0997	0.0748	NU	mg/Kg-dry	10	08/09/16 06:28 PM
Benzo[k]fluoranthene	0.0748	0.0499	0.0997	0.0748	U	mg/Kg-dry	10	08/09/16 06:28 PM
Chrysene	0.0748	0.0499	0.0997	0.0748	U	mg/Kg-dry	10	08/09/16 06:28 PM
Dibenz[a,h]anthracene	0.0748	0.0499	0.0997	0.0748	U	mg/Kg-dry	10	08/09/16 06:28 PM
Fluoranthene	0.0748	0.0499	0.0997	0.0748	U	mg/Kg-dry	10	08/09/16 06:28 PM
Fluorene	0.0748	0.0499	0.0997	0.0748	U	mg/Kg-dry	10	08/09/16 06:28 PM
Indeno[1,2,3-cd]pyrene	0.0748	0.0499	0.0997	0.0748	U	mg/Kg-dry	10	08/09/16 06:28 PM
Phenanthrene	0.0748	0.0499	0.0997	0.0748	U	mg/Kg-dry	10	08/09/16 06:28 PM
Pyrene	0.0748	0.0499	0.0997	0.0748	U	mg/Kg-dry	10	08/09/16 06:28 PM
IS: Acenaphthene-d10	132	0	50-200	0		%REC	10	08/09/16 06:28 PM
IS: Chrysene-d12	113	0	50-200	0		%REC	10	08/09/16 06:28 PM
IS: Naphthalene-d8	103	0	50-200	0		%REC	10	08/09/16 06:28 PM
IS: Perylene-d12	113	0	50-200	0		%REC	10	08/09/16 06:28 PM
IS: Phenanthrene-d10	93.6	0	50-200	0		%REC	10	08/09/16 06:28 PM
Surr: 2-Fluorobiphenyl	78.0	0	46-115	0		%REC	10	08/09/16 06:28 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU080(6-8)-A
Project:	Laredo SGR	**Lab ID:**	1607317-17
Project No:	04285081.0000.00044	**Collection Date:**	07/27/16 12:50 PM
Lab Order:	1607317	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	85.4	0	58-133	0		%REC	10	08/09/16 06:28 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *19-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU080(0-2)-B
Project:	Laredo SGR	**Lab ID:**	1607317-18
Project No:	04285081.0000.00044	**Collection Date:**	07/27/16 12:52 PM
Lab Order:	1607317	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **CVD**
Lead	40.6	0.0877	0.263	0.132		mg/Kg-dry	5	08/10/16 09:35 PM
IS: Bismuth	73.5	0	30-120	0		%REC	5	08/10/16 09:35 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0735	0.0490	0.0979	0.0735	U	mg/Kg-dry	10	08/09/16 09:49 PM
Acenaphthylene	0.0735	0.0490	0.0979	0.0735	U	mg/Kg-dry	10	08/09/16 09:49 PM
Anthracene	0.0825	0.0490	0.0979	0.0735	J	mg/Kg-dry	10	08/09/16 09:49 PM
Benzo[a]anthracene	0.425	0.0490	0.0979	0.0735		mg/Kg-dry	10	08/09/16 09:49 PM
Benzo[a]pyrene	0.438	0.0490	0.0979	0.0735		mg/Kg-dry	10	08/09/16 09:49 PM
Benzo[b]fluoranthene	0.424	0.0490	0.0979	0.0735		mg/Kg-dry	10	08/09/16 09:49 PM
Benzo[e]pyrene	0.336	0.0490	0.0979	0.0735		mg/Kg-dry	10	08/09/16 09:49 PM
Benzo[g,h,i]perylene	0.336	0.0490	0.0979	0.0735		mg/Kg-dry	10	08/09/16 09:49 PM
Benzo[j]fluoranthene	0.232	0.0490	0.0979	0.0735	N	mg/Kg-dry	10	08/09/16 09:49 PM
Benzo[k]fluoranthene	0.231	0.0490	0.0979	0.0735		mg/Kg-dry	10	08/09/16 09:49 PM
Chrysene	0.504	0.0490	0.0979	0.0735		mg/Kg-dry	10	08/09/16 09:49 PM
Dibenz[a,h]anthracene	0.0798	0.0490	0.0979	0.0735	J	mg/Kg-dry	10	08/09/16 09:49 PM
Fluoranthene	0.897	0.0490	0.0979	0.0735		mg/Kg-dry	10	08/09/16 09:49 PM
Fluorene	0.0735	0.0490	0.0979	0.0735	U	mg/Kg-dry	10	08/09/16 09:49 PM
Indeno[1,2,3-cd]pyrene	0.292	0.0490	0.0979	0.0735		mg/Kg-dry	10	08/09/16 09:49 PM
Phenanthrene	0.459	0.0490	0.0979	0.0735		mg/Kg-dry	10	08/09/16 09:49 PM
Pyrene	0.755	0.0490	0.0979	0.0735		mg/Kg-dry	10	08/09/16 09:49 PM
IS: Acenaphthene-d10	136	0	50-200	0		%REC	10	08/09/16 09:49 PM
IS: Chrysene-d12	115	0	50-200	0		%REC	10	08/09/16 09:49 PM
IS: Naphthalene-d8	108	0	50-200	0		%REC	10	08/09/16 09:49 PM
IS: Perylene-d12	117	0	50-200	0		%REC	10	08/09/16 09:49 PM
IS: Phenanthrene-d10	97.3	0	50-200	0		%REC	10	08/09/16 09:49 PM
Surr: 2-Fluorobiphenyl	74.4	0	46-115	0		%REC	10	08/09/16 09:49 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU080(0-2)-B
Project:	Laredo SGR	**Lab ID:**	1607317-18
Project No:	04285081.0000.00044	**Collection Date:**	07/27/16 12:52 PM
Lab Order:	1607317	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	80.6	0	58-133	0		%REC	10	08/09/16 09:49 PM

Qualifiers:	*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
	C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
	E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
	MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
	RL	Reporting Limit	S	Spike Recovery outside control limits
	N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *19-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU080(2-4)-B
Project:	Laredo SGR	**Lab ID:**	1607317-19
Project No:	04285081.0000.00044	**Collection Date:**	07/27/16 12:54 PM
Lab Order:	1607317	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **CVD**
Lead	9.60	0.0980	0.294	0.147		mg/Kg-dry	5	08/10/16 10:23 PM
IS: Bismuth	75.8	0	30-120	0		%REC	5	08/10/16 10:23 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0735	0.0490	0.0980	0.0735	U	mg/Kg-dry	10	08/09/16 10:29 PM
Acenaphthylene	0.0735	0.0490	0.0980	0.0735	U	mg/Kg-dry	10	08/09/16 10:29 PM
Anthracene	0.0735	0.0490	0.0980	0.0735	U	mg/Kg-dry	10	08/09/16 10:29 PM
Benzo[a]anthracene	0.0735	0.0490	0.0980	0.0735	U	mg/Kg-dry	10	08/09/16 10:29 PM
Benzo[a]pyrene	0.0735	0.0490	0.0980	0.0735	U	mg/Kg-dry	10	08/09/16 10:29 PM
Benzo[b]fluoranthene	0.0735	0.0490	0.0980	0.0735	U	mg/Kg-dry	10	08/09/16 10:29 PM
Benzo[e]pyrene	0.0735	0.0490	0.0980	0.0735	U	mg/Kg-dry	10	08/09/16 10:29 PM
Benzo[g,h,i]perylene	0.0735	0.0490	0.0980	0.0735	U	mg/Kg-dry	10	08/09/16 10:29 PM
Benzo[j]fluoranthene	0.0735	0.0490	0.0980	0.0735	NU	mg/Kg-dry	10	08/09/16 10:29 PM
Benzo[k]fluoranthene	0.0735	0.0490	0.0980	0.0735	U	mg/Kg-dry	10	08/09/16 10:29 PM
Chrysene	0.0735	0.0490	0.0980	0.0735	U	mg/Kg-dry	10	08/09/16 10:29 PM
Dibenz[a,h]anthracene	0.0735	0.0490	0.0980	0.0735	U	mg/Kg-dry	10	08/09/16 10:29 PM
Fluoranthene	0.0735	0.0490	0.0980	0.0735	U	mg/Kg-dry	10	08/09/16 10:29 PM
Fluorene	0.0735	0.0490	0.0980	0.0735	U	mg/Kg-dry	10	08/09/16 10:29 PM
Indeno[1,2,3-cd]pyrene	0.0735	0.0490	0.0980	0.0735	U	mg/Kg-dry	10	08/09/16 10:29 PM
Phenanthrene	0.0735	0.0490	0.0980	0.0735	U	mg/Kg-dry	10	08/09/16 10:29 PM
Pyrene	0.0735	0.0490	0.0980	0.0735	U	mg/Kg-dry	10	08/09/16 10:29 PM
IS: Acenaphthene-d10	134	0	50-200	0		%REC	10	08/09/16 10:29 PM
IS: Chrysene-d12	112	0	50-200	0		%REC	10	08/09/16 10:29 PM
IS: Naphthalene-d8	108	0	50-200	0		%REC	10	08/09/16 10:29 PM
IS: Perylene-d12	114	0	50-200	0		%REC	10	08/09/16 10:29 PM
IS: Phenanthrene-d10	95.8	0	50-200	0		%REC	10	08/09/16 10:29 PM
Surr: 2-Fluorobiphenyl	75.1	0	46-115	0		%REC	10	08/09/16 10:29 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU080(2-4)-B
Project:	Laredo SGR	**Lab ID:**	1607317-19
Project No:	04285081.0000.00044	**Collection Date:**	07/27/16 12:54 PM
Lab Order:	1607317	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	80.3	0	58-133	0		%REC	10	08/09/16 10:29 PM

Qualifiers:				
	*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
	C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
	E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
	MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
	RL	Reporting Limit	S	Spike Recovery outside control limits
	N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU080(4-6)-B
Project:	Laredo SGR	**Lab ID:**	1607317-20
Project No:	04285081.0000.00044	**Collection Date:**	07/27/16 12:56 PM
Lab Order:	1607317	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **CVD**
Lead	5.16	0.0971	0.291	0.146		mg/Kg-dry	5	08/10/16 10:29 PM
IS: Bismuth	69.7	0	30-120	0		%REC	5	08/10/16 10:29 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/09/16 11:09 PM
Acenaphthylene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/09/16 11:09 PM
Anthracene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/09/16 11:09 PM
Benzo[a]anthracene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/09/16 11:09 PM
Benzo[a]pyrene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/09/16 11:09 PM
Benzo[b]fluoranthene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/09/16 11:09 PM
Benzo[e]pyrene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/09/16 11:09 PM
Benzo[g,h,i]perylene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/09/16 11:09 PM
Benzo[j]fluoranthene	0.0744	0.0496	0.0992	0.0744	NU	mg/Kg-dry	10	08/09/16 11:09 PM
Benzo[k]fluoranthene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/09/16 11:09 PM
Chrysene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/09/16 11:09 PM
Dibenz[a,h]anthracene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/09/16 11:09 PM
Fluoranthene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/09/16 11:09 PM
Fluorene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/09/16 11:09 PM
Indeno[1,2,3-cd]pyrene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/09/16 11:09 PM
Phenanthrene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/09/16 11:09 PM
Pyrene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/09/16 11:09 PM
IS: Acenaphthene-d10	141	0	50-200	0		%REC	10	08/09/16 11:09 PM
IS: Chrysene-d12	118	0	50-200	0		%REC	10	08/09/16 11:09 PM
IS: Naphthalene-d8	113	0	50-200	0		%REC	10	08/09/16 11:09 PM
IS: Perylene-d12	121	0	50-200	0		%REC	10	08/09/16 11:09 PM
IS: Phenanthrene-d10	99.8	0	50-200	0		%REC	10	08/09/16 11:09 PM
Surr: 2-Fluorobiphenyl	71.7	0	46-115	0		%REC	10	08/09/16 11:09 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU080(4-6)-B
Project:	Laredo SGR	**Lab ID:**	1607317-20
Project No:	04285081.0000.00044	**Collection Date:**	07/27/16 12:56 PM
Lab Order:	1607317	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	79.4	0	58-133	0		%REC	10	08/09/16 11:09 PM

Qualifiers:	*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
	C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
	E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
	MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
	RL	Reporting Limit	S	Spike Recovery outside control limits
	N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *19-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU080(6-8)-B
Project:	Laredo SGR	**Lab ID:**	1607317-21
Project No:	04285081.0000.00044	**Collection Date:**	07/27/16 12:58 PM
Lab Order:	1607317	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **CVD**
Lead	4.73	0.0962	0.288	0.144		mg/Kg-dry	5	08/10/16 10:34 PM
IS: Bismuth	74.7	0	30-120	0		%REC	5	08/10/16 10:34 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0732	0.0488	0.0976	0.0732	U	mg/Kg-dry	10	08/09/16 11:48 PM
Acenaphthylene	0.0732	0.0488	0.0976	0.0732	U	mg/Kg-dry	10	08/09/16 11:48 PM
Anthracene	0.0732	0.0488	0.0976	0.0732	U	mg/Kg-dry	10	08/09/16 11:48 PM
Benzo[a]anthracene	0.0732	0.0488	0.0976	0.0732	U	mg/Kg-dry	10	08/09/16 11:48 PM
Benzo[a]pyrene	0.0732	0.0488	0.0976	0.0732	U	mg/Kg-dry	10	08/09/16 11:48 PM
Benzo[b]fluoranthene	0.0732	0.0488	0.0976	0.0732	U	mg/Kg-dry	10	08/09/16 11:48 PM
Benzo[e]pyrene	0.0732	0.0488	0.0976	0.0732	U	mg/Kg-dry	10	08/09/16 11:48 PM
Benzo[g,h,i]perylene	0.0732	0.0488	0.0976	0.0732	U	mg/Kg-dry	10	08/09/16 11:48 PM
Benzo[j]fluoranthene	0.0732	0.0488	0.0976	0.0732	NU	mg/Kg-dry	10	08/09/16 11:48 PM
Benzo[k]fluoranthene	0.0732	0.0488	0.0976	0.0732	U	mg/Kg-dry	10	08/09/16 11:48 PM
Chrysene	0.0732	0.0488	0.0976	0.0732	U	mg/Kg-dry	10	08/09/16 11:48 PM
Dibenz[a,h]anthracene	0.0732	0.0488	0.0976	0.0732	U	mg/Kg-dry	10	08/09/16 11:48 PM
Fluoranthene	0.0732	0.0488	0.0976	0.0732	U	mg/Kg-dry	10	08/09/16 11:48 PM
Fluorene	0.0732	0.0488	0.0976	0.0732	U	mg/Kg-dry	10	08/09/16 11:48 PM
Indeno[1,2,3-cd]pyrene	0.0732	0.0488	0.0976	0.0732	U	mg/Kg-dry	10	08/09/16 11:48 PM
Phenanthrene	0.0732	0.0488	0.0976	0.0732	U	mg/Kg-dry	10	08/09/16 11:48 PM
Pyrene	0.0732	0.0488	0.0976	0.0732	U	mg/Kg-dry	10	08/09/16 11:48 PM
IS: Acenaphthene-d10	140	0	50-200	0		%REC	10	08/09/16 11:48 PM
IS: Chrysene-d12	120	0	50-200	0		%REC	10	08/09/16 11:48 PM
IS: Naphthalene-d8	112	0	50-200	0		%REC	10	08/09/16 11:48 PM
IS: Perylene-d12	123	0	50-200	0		%REC	10	08/09/16 11:48 PM
IS: Phenanthrene-d10	99.1	0	50-200	0		%REC	10	08/09/16 11:48 PM
Surr: 2-Fluorobiphenyl	72.1	0	46-115	0		%REC	10	08/09/16 11:48 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU080(6-8)-B
Project:	Laredo SGR	**Lab ID:**	1607317-21
Project No:	04285081.0000.00044	**Collection Date:**	07/27/16 12:58 PM
Lab Order:	1607317	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	82.0	0	58-133	0		%REC	10	08/09/16 11:48 PM

Qualifiers:	*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
	C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
	E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
	MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
	RL	Reporting Limit	S	Spike Recovery outside control limits
	N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *19-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU080(0-2)-C
Project:	Laredo SGR	**Lab ID:**	1607317-22
Project No:	04285081.0000.00044	**Collection Date:**	07/27/16 01:00 PM
Lab Order:	1607317	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **CVD**
Lead	60.7	0.0935	0.280	0.140		mg/Kg-dry	5	08/10/16 10:40 PM
IS: Bismuth	74.6	0	30-120	0		%REC	5	08/10/16 10:40 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0804	0.0490	0.0979	0.0735	J	mg/Kg-dry	10	08/10/16 12:28 AM
Acenaphthylene	0.0735	0.0490	0.0979	0.0735	U	mg/Kg-dry	10	08/10/16 12:28 AM
Anthracene	0.187	0.0490	0.0979	0.0735		mg/Kg-dry	10	08/10/16 12:28 AM
Benzo[a]anthracene	2.14	0.0490	0.0979	0.0735		mg/Kg-dry	10	08/10/16 12:28 AM
Benzo[a]pyrene	2.85	0.0490	0.0979	0.0735		mg/Kg-dry	10	08/10/16 12:28 AM
Benzo[b]fluoranthene	2.65	0.0490	0.0979	0.0735		mg/Kg-dry	10	08/10/16 12:28 AM
Benzo[e]pyrene	2.11	0.0490	0.0979	0.0735		mg/Kg-dry	10	08/10/16 12:28 AM
Benzo[g,h,i]perylene	2.27	0.0490	0.0979	0.0735		mg/Kg-dry	10	08/10/16 12:28 AM
Benzo[j]fluoranthene	1.38	0.0490	0.0979	0.0735	N	mg/Kg-dry	10	08/10/16 12:28 AM
Benzo[k]fluoranthene	1.39	0.0490	0.0979	0.0735		mg/Kg-dry	10	08/10/16 12:28 AM
Chrysene	2.67	0.0490	0.0979	0.0735		mg/Kg-dry	10	08/10/16 12:28 AM
Dibenz[a,h]anthracene	0.492	0.0490	0.0979	0.0735		mg/Kg-dry	10	08/10/16 12:28 AM
Fluoranthene	3.21	0.0490	0.0979	0.0735		mg/Kg-dry	10	08/10/16 12:28 AM
Fluorene	0.0735	0.0490	0.0979	0.0735	U	mg/Kg-dry	10	08/10/16 12:28 AM
Indeno[1,2,3-cd]pyrene	1.93	0.0490	0.0979	0.0735		mg/Kg-dry	10	08/10/16 12:28 AM
Phenanthrene	1.06	0.0490	0.0979	0.0735		mg/Kg-dry	10	08/10/16 12:28 AM
Pyrene	2.93	0.0490	0.0979	0.0735		mg/Kg-dry	10	08/10/16 12:28 AM
IS: Acenaphthene-d10	132	0	50-200	0		%REC	10	08/10/16 12:28 AM
IS: Chrysene-d12	112	0	50-200	0		%REC	10	08/10/16 12:28 AM
IS: Naphthalene-d8	107	0	50-200	0		%REC	10	08/10/16 12:28 AM
IS: Perylene-d12	116	0	50-200	0		%REC	10	08/10/16 12:28 AM
IS: Phenanthrene-d10	95.3	0	50-200	0		%REC	10	08/10/16 12:28 AM
Surr: 2-Fluorobiphenyl	73.9	0	46-115	0		%REC	10	08/10/16 12:28 AM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU080(0-2)-C
Project:	Laredo SGR	**Lab ID:**	1607317-22
Project No:	04285081.0000.00044	**Collection Date:**	07/27/16 01:00 PM
Lab Order:	1607317	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	81.9	0	58-133	0		%REC	10	08/10/16 12:28 AM

Qualifiers:	*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
	C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
	E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
	MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
	RL	Reporting Limit	S	Spike Recovery outside control limits
	N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU080(2-4)-C
Project:	Laredo SGR	**Lab ID:**	1607317-23
Project No:	04285081.0000.00044	**Collection Date:**	07/27/16 01:02 PM
Lab Order:	1607317	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **CVD**
Lead	11.8	0.0971	0.291	0.146		mg/Kg-dry	5	08/10/16 10:46 PM
IS: Bismuth	74.3	0	30-120	0		%REC	5	08/10/16 10:46 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	08/10/16 01:08 AM
Acenaphthylene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	08/10/16 01:08 AM
Anthracene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	08/10/16 01:08 AM
Benzo[a]anthracene	0.0647	0.0499	0.0998	0.0749	J	mg/Kg-dry	10	08/10/16 01:08 AM
Benzo[a]pyrene	0.0827	0.0499	0.0998	0.0749	J	mg/Kg-dry	10	08/10/16 01:08 AM
Benzo[b]fluoranthene	0.0780	0.0499	0.0998	0.0749	J	mg/Kg-dry	10	08/10/16 01:08 AM
Benzo[e]pyrene	0.0644	0.0499	0.0998	0.0749	J	mg/Kg-dry	10	08/10/16 01:08 AM
Benzo[g,h,i]perylene	0.0665	0.0499	0.0998	0.0749	J	mg/Kg-dry	10	08/10/16 01:08 AM
Benzo[j]fluoranthene	0.0749	0.0499	0.0998	0.0749	NU	mg/Kg-dry	10	08/10/16 01:08 AM
Benzo[k]fluoranthene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	08/10/16 01:08 AM
Chrysene	0.0803	0.0499	0.0998	0.0749	J	mg/Kg-dry	10	08/10/16 01:08 AM
Dibenz[a,h]anthracene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	08/10/16 01:08 AM
Fluoranthene	0.123	0.0499	0.0998	0.0749		mg/Kg-dry	10	08/10/16 01:08 AM
Fluorene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	08/10/16 01:08 AM
Indeno[1,2,3-cd]pyrene	0.0552	0.0499	0.0998	0.0749	J	mg/Kg-dry	10	08/10/16 01:08 AM
Phenanthrene	0.0600	0.0499	0.0998	0.0749	J	mg/Kg-dry	10	08/10/16 01:08 AM
Pyrene	0.111	0.0499	0.0998	0.0749		mg/Kg-dry	10	08/10/16 01:08 AM
IS: Acenaphthene-d10	138	0	50-200	0		%REC	10	08/10/16 01:08 AM
IS: Chrysene-d12	117	0	50-200	0		%REC	10	08/10/16 01:08 AM
IS: Naphthalene-d8	110	0	50-200	0		%REC	10	08/10/16 01:08 AM
IS: Perylene-d12	120	0	50-200	0		%REC	10	08/10/16 01:08 AM
IS: Phenanthrene-d10	98.0	0	50-200	0		%REC	10	08/10/16 01:08 AM
Surr: 2-Fluorobiphenyl	66.9	0	46-115	0		%REC	10	08/10/16 01:08 AM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU080(2-4)-C
Project:	Laredo SGR	**Lab ID:**	1607317-23
Project No:	04285081.0000.00044	**Collection Date:**	07/27/16 01:02 PM
Lab Order:	1607317	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	72.5	0	58-133	0		%REC	10	08/10/16 01:08 AM

Qualifiers:	*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
	C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
	E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
	MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
	RL	Reporting Limit	S	Spike Recovery outside control limits
	N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *19-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU080(4-6)-C
Project:	Laredo SGR	**Lab ID:**	1607317-24
Project No:	04285081.0000.00044	**Collection Date:**	07/27/16 01:04 PM
Lab Order:	1607317	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **CVD**
Lead	8.10	0.0926	0.278	0.139		mg/Kg-dry	5	08/10/16 10:58 PM
IS: Bismuth	71.2	0	30-120	0		%REC	5	08/10/16 10:58 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	08/10/16 01:49 AM
Acenaphthylene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	08/10/16 01:49 AM
Anthracene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	08/10/16 01:49 AM
Benzo[a]anthracene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	08/10/16 01:49 AM
Benzo[a]pyrene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	08/10/16 01:49 AM
Benzo[b]fluoranthene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	08/10/16 01:49 AM
Benzo[e]pyrene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	08/10/16 01:49 AM
Benzo[g,h,i]perylene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	08/10/16 01:49 AM
Benzo[j]fluoranthene	0.0747	0.0498	0.0996	0.0747	NU	mg/Kg-dry	10	08/10/16 01:49 AM
Benzo[k]fluoranthene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	08/10/16 01:49 AM
Chrysene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	08/10/16 01:49 AM
Dibenz[a,h]anthracene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	08/10/16 01:49 AM
Fluoranthene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	08/10/16 01:49 AM
Fluorene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	08/10/16 01:49 AM
Indeno[1,2,3-cd]pyrene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	08/10/16 01:49 AM
Phenanthrene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	08/10/16 01:49 AM
Pyrene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	08/10/16 01:49 AM
IS: Acenaphthene-d10	140	0	50-200	0		%REC	10	08/10/16 01:49 AM
IS: Chrysene-d12	119	0	50-200	0		%REC	10	08/10/16 01:49 AM
IS: Naphthalene-d8	112	0	50-200	0		%REC	10	08/10/16 01:49 AM
IS: Perylene-d12	122	0	50-200	0		%REC	10	08/10/16 01:49 AM
IS: Phenanthrene-d10	101	0	50-200	0		%REC	10	08/10/16 01:49 AM
Surr: 2-Fluorobiphenyl	65.3	0	46-115	0		%REC	10	08/10/16 01:49 AM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU080(4-6)-C
Project:	Laredo SGR	**Lab ID:**	1607317-24
Project No:	04285081.0000.00044	**Collection Date:**	07/27/16 01:04 PM
Lab Order:	1607317	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	73.2	0	58-133	0		%REC	10	08/10/16 01:49 AM

Qualifiers:	*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
	C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
	E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
	MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
	RL	Reporting Limit	S	Spike Recovery outside control limits
	N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU080(6-8)-C
Project:	Laredo SGR	**Lab ID:**	1607317-25
Project No:	04285081.0000.00044	**Collection Date:**	07/27/16 01:06 PM
Lab Order:	1607317	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **CVD**
Lead	4.73	0.0962	0.288	0.144		mg/Kg-dry	5	08/10/16 11:04 PM
IS: Bismuth	73.1	0	30-120	0		%REC	5	08/10/16 11:04 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0748	0.0499	0.0997	0.0748	U	mg/Kg-dry	10	08/10/16 02:29 AM
Acenaphthylene	0.0748	0.0499	0.0997	0.0748	U	mg/Kg-dry	10	08/10/16 02:29 AM
Anthracene	0.0748	0.0499	0.0997	0.0748	U	mg/Kg-dry	10	08/10/16 02:29 AM
Benzo[a]anthracene	0.0748	0.0499	0.0997	0.0748	U	mg/Kg-dry	10	08/10/16 02:29 AM
Benzo[a]pyrene	0.0748	0.0499	0.0997	0.0748	U	mg/Kg-dry	10	08/10/16 02:29 AM
Benzo[b]fluoranthene	0.0748	0.0499	0.0997	0.0748	U	mg/Kg-dry	10	08/10/16 02:29 AM
Benzo[e]pyrene	0.0748	0.0499	0.0997	0.0748	U	mg/Kg-dry	10	08/10/16 02:29 AM
Benzo[g,h,i]perylene	0.0748	0.0499	0.0997	0.0748	U	mg/Kg-dry	10	08/10/16 02:29 AM
Benzo[j]fluoranthene	0.0748	0.0499	0.0997	0.0748	NU	mg/Kg-dry	10	08/10/16 02:29 AM
Benzo[k]fluoranthene	0.0748	0.0499	0.0997	0.0748	U	mg/Kg-dry	10	08/10/16 02:29 AM
Chrysene	0.0748	0.0499	0.0997	0.0748	U	mg/Kg-dry	10	08/10/16 02:29 AM
Dibenz[a,h]anthracene	0.0748	0.0499	0.0997	0.0748	U	mg/Kg-dry	10	08/10/16 02:29 AM
Fluoranthene	0.0748	0.0499	0.0997	0.0748	U	mg/Kg-dry	10	08/10/16 02:29 AM
Fluorene	0.0748	0.0499	0.0997	0.0748	U	mg/Kg-dry	10	08/10/16 02:29 AM
Indeno[1,2,3-cd]pyrene	0.0748	0.0499	0.0997	0.0748	U	mg/Kg-dry	10	08/10/16 02:29 AM
Phenanthrene	0.0748	0.0499	0.0997	0.0748	U	mg/Kg-dry	10	08/10/16 02:29 AM
Pyrene	0.0748	0.0499	0.0997	0.0748	U	mg/Kg-dry	10	08/10/16 02:29 AM
IS: Acenaphthene-d10	142	0	50-200	0		%REC	10	08/10/16 02:29 AM
IS: Chrysene-d12	119	0	50-200	0		%REC	10	08/10/16 02:29 AM
IS: Naphthalene-d8	113	0	50-200	0		%REC	10	08/10/16 02:29 AM
IS: Perylene-d12	122	0	50-200	0		%REC	10	08/10/16 02:29 AM
IS: Phenanthrene-d10	101	0	50-200	0		%REC	10	08/10/16 02:29 AM
Surr: 2-Fluorobiphenyl	70.0	0	46-115	0		%REC	10	08/10/16 02:29 AM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU080(6-8)-C
Project:	Laredo SGR	**Lab ID:**	1607317-25
Project No:	04285081.0000.00044	**Collection Date:**	07/27/16 01:06 PM
Lab Order:	1607317	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	75.2	0	58-133	0		%REC	10	08/10/16 02:29 AM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *19-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	EB02(20160727)
Project:	Laredo SGR	**Lab ID:**	1607317-26
Project No:	04285081.0000.00044	**Collection Date:**	07/27/16 01:10 PM
Lab Order:	1607317	**Matrix:**	EQUIP BLANK

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER			**SW6020A**					Analyst: **CVD**
Lead	0.000900	0.000300	0.00100	0.000900	U	mg/L	1	08/10/16 02:22 AM
IS: Bismuth	89.7	0	30-120	0		%REC	1	08/10/16 02:22 AM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Acenaphthene	0.0000797	0.0000498	0.0000997	0.0000797	U	mg/L	1	08/03/16 10:26 PM
Acenaphthylene	0.0000797	0.0000498	0.0000997	0.0000797	U	mg/L	1	08/03/16 10:26 PM
Anthracene	0.0000797	0.0000498	0.0000997	0.0000797	U	mg/L	1	08/03/16 10:26 PM
Benzo[a]anthracene	0.0000797	0.0000498	0.0000997	0.0000797	U	mg/L	1	08/03/16 10:26 PM
Benzo[a]pyrene	0.0000797	0.0000498	0.0000997	0.0000797	U	mg/L	1	08/03/16 10:26 PM
Benzo[b]fluoranthene	0.0000797	0.0000498	0.0000997	0.0000797	U	mg/L	1	08/03/16 10:26 PM
Benzo[e]pyrene	0.0000797	0.0000498	0.0000997	0.0000797	U	mg/L	1	08/03/16 10:26 PM
Benzo[g,h,i]perylene	0.0000797	0.0000498	0.0000997	0.0000797	U	mg/L	1	08/03/16 10:26 PM
Benzo[j]fluoranthene	0.0000797	0.0000498	0.0000997	0.0000797	NU	mg/L	1	08/03/16 10:26 PM
Benzo[k]fluoranthene	0.0000797	0.0000498	0.0000997	0.0000797	U	mg/L	1	08/03/16 10:26 PM
Chrysene	0.0000797	0.0000498	0.0000997	0.0000797	U	mg/L	1	08/03/16 10:26 PM
Dibenz[a,h]anthracene	0.0000797	0.0000498	0.0000997	0.0000797	U	mg/L	1	08/03/16 10:26 PM
Fluoranthene	0.0000797	0.0000498	0.0000997	0.0000797	U	mg/L	1	08/03/16 10:26 PM
Fluorene	0.0000797	0.0000498	0.0000997	0.0000797	U	mg/L	1	08/03/16 10:26 PM
Indeno[1,2,3-cd]pyrene	0.0000797	0.0000498	0.0000997	0.0000797	U	mg/L	1	08/03/16 10:26 PM
Phenanthrene	0.0000797	0.0000498	0.0000997	0.0000797	U	mg/L	1	08/03/16 10:26 PM
Pyrene	0.0000797	0.0000498	0.0000997	0.0000797	U	mg/L	1	08/03/16 10:26 PM
IS: Acenaphthene-d10	103	0	50-200	0		%REC	1	08/03/16 10:26 PM
IS: Chrysene-d12	88.7	0	50-200	0		%REC	1	08/03/16 10:26 PM
IS: Naphthalene-d8	88.3	0	50-200	0		%REC	1	08/03/16 10:26 PM
IS: Perylene-d12	89.1	0	50-200	0		%REC	1	08/03/16 10:26 PM
IS: Phenanthrene-d10	109	0	50-200	0		%REC	1	08/03/16 10:26 PM
Surr: 2-Fluorobiphenyl	76.0	0	53-106	0		%REC	1	08/03/16 10:26 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	EB02(20160727)
Project:	Laredo SGR	**Lab ID:**	1607317-26
Project No:	04285081.0000.00044	**Collection Date:**	07/27/16 01:10 PM
Lab Order:	1607317	**Matrix:**	EQUIP BLANK

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Surr: 4-Terphenyl-d14	63.3	0	58-132	0		%REC	1	08/03/16 10:26 PM

Qualifiers:	*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
	C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
	E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
	MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
	RL	Reporting Limit	S	Spike Recovery outside control limits
	N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU176(0-2)-A
Project:	Laredo SGR	**Lab ID:**	1607317-27
Project No:	04285081.0000.00044	**Collection Date:**	07/27/16 03:00 PM
Lab Order:	1607317	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	47.4	0.0952	0.286	0.143		mg/Kg-dry	5	08/11/16 04:24 PM
IS: Bismuth	102	0	30-120	0		%REC	5	08/11/16 04:24 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0728	0.0485	0.0971	0.0728	U	mg/Kg-dry	10	08/09/16 11:05 AM
Acenaphthylene	0.0728	0.0485	0.0971	0.0728	U	mg/Kg-dry	10	08/09/16 11:05 AM
Anthracene	0.0728	0.0485	0.0971	0.0728	U	mg/Kg-dry	10	08/09/16 11:05 AM
Benzo[a]anthracene	0.0728	0.0485	0.0971	0.0728	U	mg/Kg-dry	10	08/09/16 11:05 AM
Benzo[a]pyrene	0.0495	0.0485	0.0971	0.0728	J	mg/Kg-dry	10	08/09/16 11:05 AM
Benzo[b]fluoranthene	0.0728	0.0485	0.0971	0.0728	U	mg/Kg-dry	10	08/09/16 11:05 AM
Benzo[e]pyrene	0.0728	0.0485	0.0971	0.0728	U	mg/Kg-dry	10	08/09/16 11:05 AM
Benzo[g,h,i]perylene	0.0728	0.0485	0.0971	0.0728	U	mg/Kg-dry	10	08/09/16 11:05 AM
Benzo[j]fluoranthene	0.0728	0.0485	0.0971	0.0728	NU	mg/Kg-dry	10	08/09/16 11:05 AM
Benzo[k]fluoranthene	0.0728	0.0485	0.0971	0.0728	U	mg/Kg-dry	10	08/09/16 11:05 AM
Chrysene	0.0728	0.0485	0.0971	0.0728	U	mg/Kg-dry	10	08/09/16 11:05 AM
Dibenz[a,h]anthracene	0.0728	0.0485	0.0971	0.0728	U	mg/Kg-dry	10	08/09/16 11:05 AM
Fluoranthene	0.0682	0.0485	0.0971	0.0728	J	mg/Kg-dry	10	08/09/16 11:05 AM
Fluorene	0.0728	0.0485	0.0971	0.0728	U	mg/Kg-dry	10	08/09/16 11:05 AM
Indeno[1,2,3-cd]pyrene	0.0728	0.0485	0.0971	0.0728	U	mg/Kg-dry	10	08/09/16 11:05 AM
Phenanthrene	0.0728	0.0485	0.0971	0.0728	U	mg/Kg-dry	10	08/09/16 11:05 AM
Pyrene	0.0628	0.0485	0.0971	0.0728	J	mg/Kg-dry	10	08/09/16 11:05 AM
IS: Acenaphthene-d10	140	0	50-200	0		%REC	10	08/09/16 11:05 AM
IS: Chrysene-d12	105	0	50-200	0		%REC	10	08/09/16 11:05 AM
IS: Naphthalene-d8	122	0	50-200	0		%REC	10	08/09/16 11:05 AM
IS: Perylene-d12	115	0	50-200	0		%REC	10	08/09/16 11:05 AM
IS: Phenanthrene-d10	97.3	0	50-200	0		%REC	10	08/09/16 11:05 AM
Surr: 2-Fluorobiphenyl	73.0	0	46-115	0		%REC	10	08/09/16 11:05 AM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU176(0-2)-A
Project:	Laredo SGR	**Lab ID:**	1607317-27
Project No:	04285081.0000.00044	**Collection Date:**	07/27/16 03:00 PM
Lab Order:	1607317	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	73.3	0	58-133	0		%REC	10	08/09/16 11:05 AM

Qualifiers:	*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
	C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
	E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
	MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
	RL	Reporting Limit	S	Spike Recovery outside control limits
	N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU176(2-4)-A
Project:	Laredo SGR	**Lab ID:**	1607317-28
Project No:	04285081.0000.00044	**Collection Date:**	07/27/16 03:02 PM
Lab Order:	1607317	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **CVD**
Lead	8.58	0.0893	0.268	0.134		mg/Kg-dry	5	08/10/16 11:10 PM
IS: Bismuth	72.4	0	30-120	0		%REC	5	08/10/16 11:10 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0727	0.0484	0.0969	0.0727	U	mg/Kg-dry	10	08/09/16 11:45 AM
Acenaphthylene	0.0727	0.0484	0.0969	0.0727	U	mg/Kg-dry	10	08/09/16 11:45 AM
Anthracene	0.0727	0.0484	0.0969	0.0727	U	mg/Kg-dry	10	08/09/16 11:45 AM
Benzo[a]anthracene	0.0544	0.0484	0.0969	0.0727	J	mg/Kg-dry	10	08/09/16 11:45 AM
Benzo[a]pyrene	0.0727	0.0484	0.0969	0.0727	U	mg/Kg-dry	10	08/09/16 11:45 AM
Benzo[b]fluoranthene	0.0727	0.0484	0.0969	0.0727	U	mg/Kg-dry	10	08/09/16 11:45 AM
Benzo[e]pyrene	0.0727	0.0484	0.0969	0.0727	U	mg/Kg-dry	10	08/09/16 11:45 AM
Benzo[g,h,i]perylene	0.0727	0.0484	0.0969	0.0727	U	mg/Kg-dry	10	08/09/16 11:45 AM
Benzo[j]fluoranthene	0.0727	0.0484	0.0969	0.0727	NU	mg/Kg-dry	10	08/09/16 11:45 AM
Benzo[k]fluoranthene	0.0727	0.0484	0.0969	0.0727	U	mg/Kg-dry	10	08/09/16 11:45 AM
Chrysene	0.0599	0.0484	0.0969	0.0727	J	mg/Kg-dry	10	08/09/16 11:45 AM
Dibenz[a,h]anthracene	0.0727	0.0484	0.0969	0.0727	U	mg/Kg-dry	10	08/09/16 11:45 AM
Fluoranthene	0.130	0.0484	0.0969	0.0727		mg/Kg-dry	10	08/09/16 11:45 AM
Fluorene	0.0727	0.0484	0.0969	0.0727	U	mg/Kg-dry	10	08/09/16 11:45 AM
Indeno[1,2,3-cd]pyrene	0.0727	0.0484	0.0969	0.0727	U	mg/Kg-dry	10	08/09/16 11:45 AM
Phenanthrene	0.0803	0.0484	0.0969	0.0727	J	mg/Kg-dry	10	08/09/16 11:45 AM
Pyrene	0.0998	0.0484	0.0969	0.0727		mg/Kg-dry	10	08/09/16 11:45 AM
IS: Acenaphthene-d10	136	0	50-200	0		%REC	10	08/09/16 11:45 AM
IS: Chrysene-d12	96.5	0	50-200	0		%REC	10	08/09/16 11:45 AM
IS: Naphthalene-d8	119	0	50-200	0		%REC	10	08/09/16 11:45 AM
IS: Perylene-d12	107	0	50-200	0		%REC	10	08/09/16 11:45 AM
IS: Phenanthrene-d10	92.2	0	50-200	0		%REC	10	08/09/16 11:45 AM
Surr: 2-Fluorobiphenyl	78.8	0	46-115	0		%REC	10	08/09/16 11:45 AM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU176(2-4)-A
Project:	Laredo SGR	**Lab ID:**	1607317-28
Project No:	04285081.0000.00044	**Collection Date:**	07/27/16 03:02 PM
Lab Order:	1607317	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	79.8	0	58-133	0		%REC	10	08/09/16 11:45 AM

Qualifiers:	*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
	C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
	E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
	MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
	RL	Reporting Limit	S	Spike Recovery outside control limits
	N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *19-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU176(4-6)-A
Project:	Laredo SGR	**Lab ID:**	1607317-29
Project No:	04285081.0000.00044	**Collection Date:**	07/27/16 03:04 PM
Lab Order:	1607317	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **CVD**
Lead	6.82	0.0885	0.265	0.133		mg/Kg-dry	5	08/10/16 11:16 PM
IS: Bismuth	72.5	0	30-120	0		%REC	5	08/10/16 11:16 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0743	0.0495	0.0990	0.0743	U	mg/Kg-dry	10	08/09/16 12:25 PM
Acenaphthylene	0.0743	0.0495	0.0990	0.0743	U	mg/Kg-dry	10	08/09/16 12:25 PM
Anthracene	0.0743	0.0495	0.0990	0.0743	U	mg/Kg-dry	10	08/09/16 12:25 PM
Benzo[a]anthracene	0.0743	0.0495	0.0990	0.0743	U	mg/Kg-dry	10	08/09/16 12:25 PM
Benzo[a]pyrene	0.0743	0.0495	0.0990	0.0743	U	mg/Kg-dry	10	08/09/16 12:25 PM
Benzo[b]fluoranthene	0.0743	0.0495	0.0990	0.0743	U	mg/Kg-dry	10	08/09/16 12:25 PM
Benzo[e]pyrene	0.0743	0.0495	0.0990	0.0743	U	mg/Kg-dry	10	08/09/16 12:25 PM
Benzo[g,h,i]perylene	0.0743	0.0495	0.0990	0.0743	U	mg/Kg-dry	10	08/09/16 12:25 PM
Benzo[j]fluoranthene	0.0743	0.0495	0.0990	0.0743	NU	mg/Kg-dry	10	08/09/16 12:25 PM
Benzo[k]fluoranthene	0.0743	0.0495	0.0990	0.0743	U	mg/Kg-dry	10	08/09/16 12:25 PM
Chrysene	0.0743	0.0495	0.0990	0.0743	U	mg/Kg-dry	10	08/09/16 12:25 PM
Dibenz[a,h]anthracene	0.0743	0.0495	0.0990	0.0743	U	mg/Kg-dry	10	08/09/16 12:25 PM
Fluoranthene	0.0743	0.0495	0.0990	0.0743	U	mg/Kg-dry	10	08/09/16 12:25 PM
Fluorene	0.0743	0.0495	0.0990	0.0743	U	mg/Kg-dry	10	08/09/16 12:25 PM
Indeno[1,2,3-cd]pyrene	0.0743	0.0495	0.0990	0.0743	U	mg/Kg-dry	10	08/09/16 12:25 PM
Phenanthrene	0.0743	0.0495	0.0990	0.0743	U	mg/Kg-dry	10	08/09/16 12:25 PM
Pyrene	0.0743	0.0495	0.0990	0.0743	U	mg/Kg-dry	10	08/09/16 12:25 PM
IS: Acenaphthene-d10	139	0	50-200	0		%REC	10	08/09/16 12:25 PM
IS: Chrysene-d12	101	0	50-200	0		%REC	10	08/09/16 12:25 PM
IS: Naphthalene-d8	121	0	50-200	0		%REC	10	08/09/16 12:25 PM
IS: Perylene-d12	110	0	50-200	0		%REC	10	08/09/16 12:25 PM
IS: Phenanthrene-d10	95.3	0	50-200	0		%REC	10	08/09/16 12:25 PM
Surr: 2-Fluorobiphenyl	76.8	0	46-115	0		%REC	10	08/09/16 12:25 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU176(4-6)-A
Project:	Laredo SGR	**Lab ID:**	1607317-29
Project No:	04285081.0000.00044	**Collection Date:**	07/27/16 03:04 PM
Lab Order:	1607317	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	78.4	0	58-133	0		%REC	10	08/09/16 12:25 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU176(6-8)-A
Project:	Laredo SGR	**Lab ID:**	1607317-30
Project No:	04285081.0000.00044	**Collection Date:**	07/27/16 03:06 PM
Lab Order:	1607317	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **CVD**
Lead	5.69	0.0909	0.273	0.136		mg/Kg-dry	5	08/10/16 11:22 PM
IS: Bismuth	73.9	0	30-120	0		%REC	5	08/10/16 11:22 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0740	0.0494	0.0987	0.0740	U	mg/Kg-dry	10	08/09/16 01:05 PM
Acenaphthylene	0.0740	0.0494	0.0987	0.0740	U	mg/Kg-dry	10	08/09/16 01:05 PM
Anthracene	0.0740	0.0494	0.0987	0.0740	U	mg/Kg-dry	10	08/09/16 01:05 PM
Benzo[a]anthracene	0.0740	0.0494	0.0987	0.0740	U	mg/Kg-dry	10	08/09/16 01:05 PM
Benzo[a]pyrene	0.0740	0.0494	0.0987	0.0740	U	mg/Kg-dry	10	08/09/16 01:05 PM
Benzo[b]fluoranthene	0.0740	0.0494	0.0987	0.0740	U	mg/Kg-dry	10	08/09/16 01:05 PM
Benzo[e]pyrene	0.0740	0.0494	0.0987	0.0740	U	mg/Kg-dry	10	08/09/16 01:05 PM
Benzo[g,h,i]perylene	0.0740	0.0494	0.0987	0.0740	U	mg/Kg-dry	10	08/09/16 01:05 PM
Benzo[j]fluoranthene	0.0740	0.0494	0.0987	0.0740	NU	mg/Kg-dry	10	08/09/16 01:05 PM
Benzo[k]fluoranthene	0.0740	0.0494	0.0987	0.0740	U	mg/Kg-dry	10	08/09/16 01:05 PM
Chrysene	0.0740	0.0494	0.0987	0.0740	U	mg/Kg-dry	10	08/09/16 01:05 PM
Dibenz[a,h]anthracene	0.0740	0.0494	0.0987	0.0740	U	mg/Kg-dry	10	08/09/16 01:05 PM
Fluoranthene	0.0740	0.0494	0.0987	0.0740	U	mg/Kg-dry	10	08/09/16 01:05 PM
Fluorene	0.0740	0.0494	0.0987	0.0740	U	mg/Kg-dry	10	08/09/16 01:05 PM
Indeno[1,2,3-cd]pyrene	0.0740	0.0494	0.0987	0.0740	U	mg/Kg-dry	10	08/09/16 01:05 PM
Phenanthrene	0.0740	0.0494	0.0987	0.0740	U	mg/Kg-dry	10	08/09/16 01:05 PM
Pyrene	0.0740	0.0494	0.0987	0.0740	U	mg/Kg-dry	10	08/09/16 01:05 PM
IS: Acenaphthene-d10	147	0	50-200	0		%REC	10	08/09/16 01:05 PM
IS: Chrysene-d12	96.6	0	50-200	0		%REC	10	08/09/16 01:05 PM
IS: Naphthalene-d8	116	0	50-200	0		%REC	10	08/09/16 01:05 PM
IS: Perylene-d12	104	0	50-200	0		%REC	10	08/09/16 01:05 PM
IS: Phenanthrene-d10	98.4	0	50-200	0		%REC	10	08/09/16 01:05 PM
Surr: 2-Fluorobiphenyl	79.4	0	46-115	0		%REC	10	08/09/16 01:05 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU176(6-8)-A
Project:	Laredo SGR	**Lab ID:**	1607317-30
Project No:	04285081.0000.00044	**Collection Date:**	07/27/16 03:06 PM
Lab Order:	1607317	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	70.7	0	58-133	0		%REC	10	08/09/16 01:05 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *19-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU176(0-2)-B
Project:	Laredo SGR	**Lab ID:**	1607317-31
Project No:	04285081.0000.00044	**Collection Date:**	07/27/16 03:15 PM
Lab Order:	1607317	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **CVD**
Lead	63.1	0.0943	0.283	0.142		mg/Kg-dry	5	08/11/16 12:29 AM
IS: Bismuth	59.5	0	30-120	0		%REC	5	08/11/16 12:29 AM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0746	0.0497	0.0994	0.0746	U	mg/Kg-dry	10	08/09/16 01:45 PM
Acenaphthylene	0.0746	0.0497	0.0994	0.0746	U	mg/Kg-dry	10	08/09/16 01:45 PM
Anthracene	0.0746	0.0497	0.0994	0.0746	U	mg/Kg-dry	10	08/09/16 01:45 PM
Benzo[a]anthracene	0.0746	0.0497	0.0994	0.0746	U	mg/Kg-dry	10	08/09/16 01:45 PM
Benzo[a]pyrene	0.0649	0.0497	0.0994	0.0746	J	mg/Kg-dry	10	08/09/16 01:45 PM
Benzo[b]fluoranthene	0.0643	0.0497	0.0994	0.0746	J	mg/Kg-dry	10	08/09/16 01:45 PM
Benzo[e]pyrene	0.0746	0.0497	0.0994	0.0746	U	mg/Kg-dry	10	08/09/16 01:45 PM
Benzo[g,h,i]perylene	0.0614	0.0497	0.0994	0.0746	J	mg/Kg-dry	10	08/09/16 01:45 PM
Benzo[j]fluoranthene	0.0746	0.0497	0.0994	0.0746	NU	mg/Kg-dry	10	08/09/16 01:45 PM
Benzo[k]fluoranthene	0.0746	0.0497	0.0994	0.0746	U	mg/Kg-dry	10	08/09/16 01:45 PM
Chrysene	0.0625	0.0497	0.0994	0.0746	J	mg/Kg-dry	10	08/09/16 01:45 PM
Dibenz[a,h]anthracene	0.0746	0.0497	0.0994	0.0746	U	mg/Kg-dry	10	08/09/16 01:45 PM
Fluoranthene	0.0745	0.0497	0.0994	0.0746	J	mg/Kg-dry	10	08/09/16 01:45 PM
Fluorene	0.0746	0.0497	0.0994	0.0746	U	mg/Kg-dry	10	08/09/16 01:45 PM
Indeno[1,2,3-cd]pyrene	0.0746	0.0497	0.0994	0.0746	U	mg/Kg-dry	10	08/09/16 01:45 PM
Phenanthrene	0.0746	0.0497	0.0994	0.0746	U	mg/Kg-dry	10	08/09/16 01:45 PM
Pyrene	0.0686	0.0497	0.0994	0.0746	J	mg/Kg-dry	10	08/09/16 01:45 PM
IS: Acenaphthene-d10	136	0	50-200	0		%REC	10	08/09/16 01:45 PM
IS: Chrysene-d12	103	0	50-200	0		%REC	10	08/09/16 01:45 PM
IS: Naphthalene-d8	122	0	50-200	0		%REC	10	08/09/16 01:45 PM
IS: Perylene-d12	111	0	50-200	0		%REC	10	08/09/16 01:45 PM
IS: Phenanthrene-d10	95.0	0	50-200	0		%REC	10	08/09/16 01:45 PM
Surr: 2-Fluorobiphenyl	77.7	0	46-115	0		%REC	10	08/09/16 01:45 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU176(0-2)-B
Project:	Laredo SGR	**Lab ID:**	1607317-31
Project No:	04285081.0000.00044	**Collection Date:**	07/27/16 03:15 PM
Lab Order:	1607317	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	80.6	0	58-133	0		%REC	10	08/09/16 01:45 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU176(2-4)-B
Project:	Laredo SGR	**Lab ID:**	1607317-32
Project No:	04285081.0000.00044	**Collection Date:**	07/27/16 03:17 PM
Lab Order:	1607317	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **CVD**
Lead	8.55	0.0877	0.263	0.132		mg/Kg-dry	5	08/11/16 12:59 AM
IS: Bismuth	70.0	0	30-120	0		%REC	5	08/11/16 12:59 AM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0735	0.0490	0.0980	0.0735	U	mg/Kg-dry	10	08/09/16 02:25 PM
Acenaphthylene	0.0735	0.0490	0.0980	0.0735	U	mg/Kg-dry	10	08/09/16 02:25 PM
Anthracene	0.0735	0.0490	0.0980	0.0735	U	mg/Kg-dry	10	08/09/16 02:25 PM
Benzo[a]anthracene	0.0735	0.0490	0.0980	0.0735	U	mg/Kg-dry	10	08/09/16 02:25 PM
Benzo[a]pyrene	0.0735	0.0490	0.0980	0.0735	U	mg/Kg-dry	10	08/09/16 02:25 PM
Benzo[b]fluoranthene	0.0735	0.0490	0.0980	0.0735	U	mg/Kg-dry	10	08/09/16 02:25 PM
Benzo[e]pyrene	0.0735	0.0490	0.0980	0.0735	U	mg/Kg-dry	10	08/09/16 02:25 PM
Benzo[g,h,i]perylene	0.0735	0.0490	0.0980	0.0735	U	mg/Kg-dry	10	08/09/16 02:25 PM
Benzo[j]fluoranthene	0.0735	0.0490	0.0980	0.0735	NU	mg/Kg-dry	10	08/09/16 02:25 PM
Benzo[k]fluoranthene	0.0735	0.0490	0.0980	0.0735	U	mg/Kg-dry	10	08/09/16 02:25 PM
Chrysene	0.0735	0.0490	0.0980	0.0735	U	mg/Kg-dry	10	08/09/16 02:25 PM
Dibenz[a,h]anthracene	0.0735	0.0490	0.0980	0.0735	U	mg/Kg-dry	10	08/09/16 02:25 PM
Fluoranthene	0.0735	0.0490	0.0980	0.0735	U	mg/Kg-dry	10	08/09/16 02:25 PM
Fluorene	0.0735	0.0490	0.0980	0.0735	U	mg/Kg-dry	10	08/09/16 02:25 PM
Indeno[1,2,3-cd]pyrene	0.0735	0.0490	0.0980	0.0735	U	mg/Kg-dry	10	08/09/16 02:25 PM
Phenanthrene	0.0735	0.0490	0.0980	0.0735	U	mg/Kg-dry	10	08/09/16 02:25 PM
Pyrene	0.0735	0.0490	0.0980	0.0735	U	mg/Kg-dry	10	08/09/16 02:25 PM
IS: Acenaphthene-d10	138	0	50-200	0		%REC	10	08/09/16 02:25 PM
IS: Chrysene-d12	103	0	50-200	0		%REC	10	08/09/16 02:25 PM
IS: Naphthalene-d8	122	0	50-200	0		%REC	10	08/09/16 02:25 PM
IS: Perylene-d12	112	0	50-200	0		%REC	10	08/09/16 02:25 PM
IS: Phenanthrene-d10	98.9	0	50-200	0		%REC	10	08/09/16 02:25 PM
Surr: 2-Fluorobiphenyl	75.2	0	46-115	0		%REC	10	08/09/16 02:25 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU176(2-4)-B
Project:	Laredo SGR	**Lab ID:**	1607317-32
Project No:	04285081.0000.00044	**Collection Date:**	07/27/16 03:17 PM
Lab Order:	1607317	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	76.3	0	58-133	0		%REC	10	08/09/16 02:25 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU176(4-6)-B
Project:	Laredo SGR	**Lab ID:**	1607317-33
Project No:	04285081.0000.00044	**Collection Date:**	07/27/16 03:19 PM
Lab Order:	1607317	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **CVD**
Lead	8.12	0.0990	0.297	0.149		mg/Kg-dry	5	08/11/16 01:05 AM
IS: Bismuth	67.0	0	30-120	0		%REC	5	08/11/16 01:05 AM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0730	0.0486	0.0973	0.0730	U	mg/Kg-dry	10	08/09/16 03:06 PM
Acenaphthylene	0.0730	0.0486	0.0973	0.0730	U	mg/Kg-dry	10	08/09/16 03:06 PM
Anthracene	0.0730	0.0486	0.0973	0.0730	U	mg/Kg-dry	10	08/09/16 03:06 PM
Benzo[a]anthracene	0.0730	0.0486	0.0973	0.0730	U	mg/Kg-dry	10	08/09/16 03:06 PM
Benzo[a]pyrene	0.0730	0.0486	0.0973	0.0730	U	mg/Kg-dry	10	08/09/16 03:06 PM
Benzo[b]fluoranthene	0.0730	0.0486	0.0973	0.0730	U	mg/Kg-dry	10	08/09/16 03:06 PM
Benzo[e]pyrene	0.0730	0.0486	0.0973	0.0730	U	mg/Kg-dry	10	08/09/16 03:06 PM
Benzo[g,h,i]perylene	0.0730	0.0486	0.0973	0.0730	U	mg/Kg-dry	10	08/09/16 03:06 PM
Benzo[j]fluoranthene	0.0730	0.0486	0.0973	0.0730	NU	mg/Kg-dry	10	08/09/16 03:06 PM
Benzo[k]fluoranthene	0.0730	0.0486	0.0973	0.0730	U	mg/Kg-dry	10	08/09/16 03:06 PM
Chrysene	0.0730	0.0486	0.0973	0.0730	U	mg/Kg-dry	10	08/09/16 03:06 PM
Dibenz[a,h]anthracene	0.0730	0.0486	0.0973	0.0730	U	mg/Kg-dry	10	08/09/16 03:06 PM
Fluoranthene	0.0730	0.0486	0.0973	0.0730	U	mg/Kg-dry	10	08/09/16 03:06 PM
Fluorene	0.0730	0.0486	0.0973	0.0730	U	mg/Kg-dry	10	08/09/16 03:06 PM
Indeno[1,2,3-cd]pyrene	0.0730	0.0486	0.0973	0.0730	U	mg/Kg-dry	10	08/09/16 03:06 PM
Phenanthrene	0.0730	0.0486	0.0973	0.0730	U	mg/Kg-dry	10	08/09/16 03:06 PM
Pyrene	0.0730	0.0486	0.0973	0.0730	U	mg/Kg-dry	10	08/09/16 03:06 PM
IS: Acenaphthene-d10	133	0	50-200	0		%REC	10	08/09/16 03:06 PM
IS: Chrysene-d12	97.6	0	50-200	0		%REC	10	08/09/16 03:06 PM
IS: Naphthalene-d8	117	0	50-200	0		%REC	10	08/09/16 03:06 PM
IS: Perylene-d12	106	0	50-200	0		%REC	10	08/09/16 03:06 PM
IS: Phenanthrene-d10	95.4	0	50-200	0		%REC	10	08/09/16 03:06 PM
Surr: 2-Fluorobiphenyl	80.1	0	46-115	0		%REC	10	08/09/16 03:06 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU176(4-6)-B
Project:	Laredo SGR	**Lab ID:**	1607317-33
Project No:	04285081.0000.00044	**Collection Date:**	07/27/16 03:19 PM
Lab Order:	1607317	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	81.1	0	58-133	0		%REC	10	08/09/16 03:06 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU176(6-8)-B
Project:	Laredo SGR	**Lab ID:**	1607317-34
Project No:	04285081.0000.00044	**Collection Date:**	07/27/16 03:21 PM
Lab Order:	1607317	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **CVD**
Lead	8.26	0.0862	0.259	0.129		mg/Kg-dry	5	08/11/16 01:11 AM
IS: Bismuth	64.8	0	30-120	0		%REC	5	08/11/16 01:11 AM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0702	0.0468	0.0935	0.0702	U	mg/Kg-dry	10	08/09/16 03:46 PM
Acenaphthylene	0.0702	0.0468	0.0935	0.0702	U	mg/Kg-dry	10	08/09/16 03:46 PM
Anthracene	0.0702	0.0468	0.0935	0.0702	U	mg/Kg-dry	10	08/09/16 03:46 PM
Benzo[a]anthracene	0.0702	0.0468	0.0935	0.0702	U	mg/Kg-dry	10	08/09/16 03:46 PM
Benzo[a]pyrene	0.0702	0.0468	0.0935	0.0702	U	mg/Kg-dry	10	08/09/16 03:46 PM
Benzo[b]fluoranthene	0.0702	0.0468	0.0935	0.0702	U	mg/Kg-dry	10	08/09/16 03:46 PM
Benzo[e]pyrene	0.0702	0.0468	0.0935	0.0702	U	mg/Kg-dry	10	08/09/16 03:46 PM
Benzo[g,h,i]perylene	0.0702	0.0468	0.0935	0.0702	U	mg/Kg-dry	10	08/09/16 03:46 PM
Benzo[j]fluoranthene	0.0702	0.0468	0.0935	0.0702	NU	mg/Kg-dry	10	08/09/16 03:46 PM
Benzo[k]fluoranthene	0.0702	0.0468	0.0935	0.0702	U	mg/Kg-dry	10	08/09/16 03:46 PM
Chrysene	0.0702	0.0468	0.0935	0.0702	U	mg/Kg-dry	10	08/09/16 03:46 PM
Dibenz[a,h]anthracene	0.0702	0.0468	0.0935	0.0702	U	mg/Kg-dry	10	08/09/16 03:46 PM
Fluoranthene	0.0702	0.0468	0.0935	0.0702	U	mg/Kg-dry	10	08/09/16 03:46 PM
Fluorene	0.0702	0.0468	0.0935	0.0702	U	mg/Kg-dry	10	08/09/16 03:46 PM
Indeno[1,2,3-cd]pyrene	0.0702	0.0468	0.0935	0.0702	U	mg/Kg-dry	10	08/09/16 03:46 PM
Phenanthrene	0.0702	0.0468	0.0935	0.0702	U	mg/Kg-dry	10	08/09/16 03:46 PM
Pyrene	0.0702	0.0468	0.0935	0.0702	U	mg/Kg-dry	10	08/09/16 03:46 PM
IS: Acenaphthene-d10	144	0	50-200	0		%REC	10	08/09/16 03:46 PM
IS: Chrysene-d12	106	0	50-200	0		%REC	10	08/09/16 03:46 PM
IS: Naphthalene-d8	125	0	50-200	0		%REC	10	08/09/16 03:46 PM
IS: Perylene-d12	113	0	50-200	0		%REC	10	08/09/16 03:46 PM
IS: Phenanthrene-d10	101	0	50-200	0		%REC	10	08/09/16 03:46 PM
Surr: 2-Fluorobiphenyl	74.8	0	46-115	0		%REC	10	08/09/16 03:46 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU176(6-8)-B
Project:	Laredo SGR	**Lab ID:**	1607317-34
Project No:	04285081.0000.00044	**Collection Date:**	07/27/16 03:21 PM
Lab Order:	1607317	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	75.9	0	58-133	0		%REC	10	08/09/16 03:46 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *19-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU176(0-2)-C
Project:	Laredo SGR	**Lab ID:**	1607317-35
Project No:	04285081.0000.00044	**Collection Date:**	07/27/16 03:22 PM
Lab Order:	1607317	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **CVD**
Lead	34.0	0.0990	0.297	0.149		mg/Kg-dry	5	08/11/16 01:16 AM
IS: Bismuth	62.8	0	30-120	0		%REC	5	08/11/16 01:16 AM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0735	0.0490	0.0980	0.0735	U	mg/Kg-dry	10	08/09/16 04:27 PM
Acenaphthylene	0.0735	0.0490	0.0980	0.0735	U	mg/Kg-dry	10	08/09/16 04:27 PM
Anthracene	0.0735	0.0490	0.0980	0.0735	U	mg/Kg-dry	10	08/09/16 04:27 PM
Benzo[a]anthracene	0.0735	0.0490	0.0980	0.0735	U	mg/Kg-dry	10	08/09/16 04:27 PM
Benzo[a]pyrene	0.0735	0.0490	0.0980	0.0735	U	mg/Kg-dry	10	08/09/16 04:27 PM
Benzo[b]fluoranthene	0.0735	0.0490	0.0980	0.0735	U	mg/Kg-dry	10	08/09/16 04:27 PM
Benzo[e]pyrene	0.0735	0.0490	0.0980	0.0735	U	mg/Kg-dry	10	08/09/16 04:27 PM
Benzo[g,h,i]perylene	0.0735	0.0490	0.0980	0.0735	U	mg/Kg-dry	10	08/09/16 04:27 PM
Benzo[j]fluoranthene	0.0735	0.0490	0.0980	0.0735	NU	mg/Kg-dry	10	08/09/16 04:27 PM
Benzo[k]fluoranthene	0.0735	0.0490	0.0980	0.0735	U	mg/Kg-dry	10	08/09/16 04:27 PM
Chrysene	0.0735	0.0490	0.0980	0.0735	U	mg/Kg-dry	10	08/09/16 04:27 PM
Dibenz[a,h]anthracene	0.0735	0.0490	0.0980	0.0735	U	mg/Kg-dry	10	08/09/16 04:27 PM
Fluoranthene	0.0511	0.0490	0.0980	0.0735	J	mg/Kg-dry	10	08/09/16 04:27 PM
Fluorene	0.0735	0.0490	0.0980	0.0735	U	mg/Kg-dry	10	08/09/16 04:27 PM
Indeno[1,2,3-cd]pyrene	0.0735	0.0490	0.0980	0.0735	U	mg/Kg-dry	10	08/09/16 04:27 PM
Phenanthrene	0.0735	0.0490	0.0980	0.0735	U	mg/Kg-dry	10	08/09/16 04:27 PM
Pyrene	0.0735	0.0490	0.0980	0.0735	U	mg/Kg-dry	10	08/09/16 04:27 PM
IS: Acenaphthene-d10	136	0	50-200	0		%REC	10	08/09/16 04:27 PM
IS: Chrysene-d12	99.9	0	50-200	0		%REC	10	08/09/16 04:27 PM
IS: Naphthalene-d8	118	0	50-200	0		%REC	10	08/09/16 04:27 PM
IS: Perylene-d12	107	0	50-200	0		%REC	10	08/09/16 04:27 PM
IS: Phenanthrene-d10	96.7	0	50-200	0		%REC	10	08/09/16 04:27 PM
Surr: 2-Fluorobiphenyl	81.1	0	46-115	0		%REC	10	08/09/16 04:27 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU176(0-2)-C
Project:	Laredo SGR	**Lab ID:**	1607317-35
Project No:	04285081.0000.00044	**Collection Date:**	07/27/16 03:22 PM
Lab Order:	1607317	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	80.1	0	58-133	0		%REC	10	08/09/16 04:27 PM

Qualifiers:	*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
	C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
	E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
	MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
	RL	Reporting Limit	S	Spike Recovery outside control limits
	N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU176(2-4)-C
Project:	Laredo SGR	**Lab ID:**	1607317-36
Project No:	04285081.0000.00044	**Collection Date:**	07/27/16 03:24 PM
Lab Order:	1607317	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **CVD**
Lead	9.14	0.0971	0.291	0.146		mg/Kg-dry	5	08/11/16 01:29 AM
IS: Bismuth	61.2	0	30-120	0		%REC	5	08/11/16 01:29 AM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0735	0.0490	0.0980	0.0735	U	mg/Kg-dry	10	08/09/16 05:08 PM
Acenaphthylene	0.0735	0.0490	0.0980	0.0735	U	mg/Kg-dry	10	08/09/16 05:08 PM
Anthracene	0.0735	0.0490	0.0980	0.0735	U	mg/Kg-dry	10	08/09/16 05:08 PM
Benzo[a]anthracene	0.0735	0.0490	0.0980	0.0735	U	mg/Kg-dry	10	08/09/16 05:08 PM
Benzo[a]pyrene	0.0735	0.0490	0.0980	0.0735	U	mg/Kg-dry	10	08/09/16 05:08 PM
Benzo[b]fluoranthene	0.0735	0.0490	0.0980	0.0735	U	mg/Kg-dry	10	08/09/16 05:08 PM
Benzo[e]pyrene	0.0735	0.0490	0.0980	0.0735	U	mg/Kg-dry	10	08/09/16 05:08 PM
Benzo[g,h,i]perylene	0.0735	0.0490	0.0980	0.0735	U	mg/Kg-dry	10	08/09/16 05:08 PM
Benzo[j]fluoranthene	0.0735	0.0490	0.0980	0.0735	NU	mg/Kg-dry	10	08/09/16 05:08 PM
Benzo[k]fluoranthene	0.0735	0.0490	0.0980	0.0735	U	mg/Kg-dry	10	08/09/16 05:08 PM
Chrysene	0.0735	0.0490	0.0980	0.0735	U	mg/Kg-dry	10	08/09/16 05:08 PM
Dibenz[a,h]anthracene	0.0735	0.0490	0.0980	0.0735	U	mg/Kg-dry	10	08/09/16 05:08 PM
Fluoranthene	0.0735	0.0490	0.0980	0.0735	U	mg/Kg-dry	10	08/09/16 05:08 PM
Fluorene	0.0735	0.0490	0.0980	0.0735	U	mg/Kg-dry	10	08/09/16 05:08 PM
Indeno[1,2,3-cd]pyrene	0.0735	0.0490	0.0980	0.0735	U	mg/Kg-dry	10	08/09/16 05:08 PM
Phenanthrene	0.0735	0.0490	0.0980	0.0735	U	mg/Kg-dry	10	08/09/16 05:08 PM
Pyrene	0.0735	0.0490	0.0980	0.0735	U	mg/Kg-dry	10	08/09/16 05:08 PM
IS: Acenaphthene-d10	141	0	50-200	0		%REC	10	08/09/16 05:08 PM
IS: Chrysene-d12	101	0	50-200	0		%REC	10	08/09/16 05:08 PM
IS: Naphthalene-d8	118	0	50-200	0		%REC	10	08/09/16 05:08 PM
IS: Perylene-d12	108	0	50-200	0		%REC	10	08/09/16 05:08 PM
IS: Phenanthrene-d10	101	0	50-200	0		%REC	10	08/09/16 05:08 PM
Surr: 2-Fluorobiphenyl	78.4	0	46-115	0		%REC	10	08/09/16 05:08 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU176(2-4)-C
Project:	Laredo SGR	**Lab ID:**	1607317-36
Project No:	04285081.0000.00044	**Collection Date:**	07/27/16 03:24 PM
Lab Order:	1607317	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	72.8	0	58-133	0		%REC	10	08/09/16 05:08 PM

Qualifiers:	*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
	C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
	E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
	MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
	RL	Reporting Limit	S	Spike Recovery outside control limits
	N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *19-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU176(4-6)-C
Project:	Laredo SGR	**Lab ID:**	1607317-37
Project No:	04285081.0000.00044	**Collection Date:**	07/27/16 03:26 PM
Lab Order:	1607317	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **CVD**
Lead	8.06	0.0962	0.288	0.144		mg/Kg-dry	5	08/11/16 01:35 AM
IS: Bismuth	59.5	0	30-120	0		%REC	5	08/11/16 01:35 AM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0740	0.0493	0.0986	0.0740	U	mg/Kg-dry	10	08/09/16 05:48 PM
Acenaphthylene	0.0740	0.0493	0.0986	0.0740	U	mg/Kg-dry	10	08/09/16 05:48 PM
Anthracene	0.0740	0.0493	0.0986	0.0740	U	mg/Kg-dry	10	08/09/16 05:48 PM
Benzo[a]anthracene	0.0740	0.0493	0.0986	0.0740	U	mg/Kg-dry	10	08/09/16 05:48 PM
Benzo[a]pyrene	0.0740	0.0493	0.0986	0.0740	U	mg/Kg-dry	10	08/09/16 05:48 PM
Benzo[b]fluoranthene	0.0740	0.0493	0.0986	0.0740	U	mg/Kg-dry	10	08/09/16 05:48 PM
Benzo[e]pyrene	0.0740	0.0493	0.0986	0.0740	U	mg/Kg-dry	10	08/09/16 05:48 PM
Benzo[g,h,i]perylene	0.0740	0.0493	0.0986	0.0740	U	mg/Kg-dry	10	08/09/16 05:48 PM
Benzo[j]fluoranthene	0.0740	0.0493	0.0986	0.0740	NU	mg/Kg-dry	10	08/09/16 05:48 PM
Benzo[k]fluoranthene	0.0740	0.0493	0.0986	0.0740	U	mg/Kg-dry	10	08/09/16 05:48 PM
Chrysene	0.0740	0.0493	0.0986	0.0740	U	mg/Kg-dry	10	08/09/16 05:48 PM
Dibenz[a,h]anthracene	0.0740	0.0493	0.0986	0.0740	U	mg/Kg-dry	10	08/09/16 05:48 PM
Fluoranthene	0.0740	0.0493	0.0986	0.0740	U	mg/Kg-dry	10	08/09/16 05:48 PM
Fluorene	0.0740	0.0493	0.0986	0.0740	U	mg/Kg-dry	10	08/09/16 05:48 PM
Indeno[1,2,3-cd]pyrene	0.0740	0.0493	0.0986	0.0740	U	mg/Kg-dry	10	08/09/16 05:48 PM
Phenanthrene	0.0740	0.0493	0.0986	0.0740	U	mg/Kg-dry	10	08/09/16 05:48 PM
Pyrene	0.0740	0.0493	0.0986	0.0740	U	mg/Kg-dry	10	08/09/16 05:48 PM
IS: Acenaphthene-d10	138	0	50-200	0		%REC	10	08/09/16 05:48 PM
IS: Chrysene-d12	94.5	0	50-200	0		%REC	10	08/09/16 05:48 PM
IS: Naphthalene-d8	116	0	50-200	0		%REC	10	08/09/16 05:48 PM
IS: Perylene-d12	103	0	50-200	0		%REC	10	08/09/16 05:48 PM
IS: Phenanthrene-d10	95.3	0	50-200	0		%REC	10	08/09/16 05:48 PM
Surr: 2-Fluorobiphenyl	80.7	0	46-115	0		%REC	10	08/09/16 05:48 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU176(4-6)-C
Project:	Laredo SGR	**Lab ID:**	1607317-37
Project No:	04285081.0000.00044	**Collection Date:**	07/27/16 03:26 PM
Lab Order:	1607317	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	74.3	0	58-133	0		%REC	10	08/09/16 05:48 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU176(6-8)-C
Project:	Laredo SGR	**Lab ID:**	1607317-38
Project No:	04285081.0000.00044	**Collection Date:**	07/27/16 03:28 PM
Lab Order:	1607317	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **CVD**
Lead	6.50	0.0962	0.288	0.144		mg/Kg-dry	5	08/11/16 01:40 AM
IS: Bismuth	64.6	0	30-120	0		%REC	5	08/11/16 01:40 AM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0710	0.0473	0.0947	0.0710	U	mg/Kg-dry	10	08/09/16 06:27 PM
Acenaphthylene	0.0710	0.0473	0.0947	0.0710	U	mg/Kg-dry	10	08/09/16 06:27 PM
Anthracene	0.0710	0.0473	0.0947	0.0710	U	mg/Kg-dry	10	08/09/16 06:27 PM
Benzo[a]anthracene	0.0710	0.0473	0.0947	0.0710	U	mg/Kg-dry	10	08/09/16 06:27 PM
Benzo[a]pyrene	0.0710	0.0473	0.0947	0.0710	U	mg/Kg-dry	10	08/09/16 06:27 PM
Benzo[b]fluoranthene	0.0710	0.0473	0.0947	0.0710	U	mg/Kg-dry	10	08/09/16 06:27 PM
Benzo[e]pyrene	0.0710	0.0473	0.0947	0.0710	U	mg/Kg-dry	10	08/09/16 06:27 PM
Benzo[g,h,i]perylene	0.0710	0.0473	0.0947	0.0710	U	mg/Kg-dry	10	08/09/16 06:27 PM
Benzo[j]fluoranthene	0.0710	0.0473	0.0947	0.0710	NU	mg/Kg-dry	10	08/09/16 06:27 PM
Benzo[k]fluoranthene	0.0710	0.0473	0.0947	0.0710	U	mg/Kg-dry	10	08/09/16 06:27 PM
Chrysene	0.0710	0.0473	0.0947	0.0710	U	mg/Kg-dry	10	08/09/16 06:27 PM
Dibenz[a,h]anthracene	0.0710	0.0473	0.0947	0.0710	U	mg/Kg-dry	10	08/09/16 06:27 PM
Fluoranthene	0.0710	0.0473	0.0947	0.0710	U	mg/Kg-dry	10	08/09/16 06:27 PM
Fluorene	0.0710	0.0473	0.0947	0.0710	U	mg/Kg-dry	10	08/09/16 06:27 PM
Indeno[1,2,3-cd]pyrene	0.0710	0.0473	0.0947	0.0710	U	mg/Kg-dry	10	08/09/16 06:27 PM
Phenanthrene	0.0710	0.0473	0.0947	0.0710	U	mg/Kg-dry	10	08/09/16 06:27 PM
Pyrene	0.0710	0.0473	0.0947	0.0710	U	mg/Kg-dry	10	08/09/16 06:27 PM
IS: Acenaphthene-d10	139	0	50-200	0		%REC	10	08/09/16 06:27 PM
IS: Chrysene-d12	100	0	50-200	0		%REC	10	08/09/16 06:27 PM
IS: Naphthalene-d8	123	0	50-200	0		%REC	10	08/09/16 06:27 PM
IS: Perylene-d12	108	0	50-200	0		%REC	10	08/09/16 06:27 PM
IS: Phenanthrene-d10	94.6	0	50-200	0		%REC	10	08/09/16 06:27 PM
Surr: 2-Fluorobiphenyl	78.9	0	46-115	0		%REC	10	08/09/16 06:27 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU176(6-8)-C
Project:	Laredo SGR	**Lab ID:**	1607317-38
Project No:	04285081.0000.00044	**Collection Date:**	07/27/16 03:28 PM
Lab Order:	1607317	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	79.8	0	58-133	0		%REC	10	08/09/16 06:27 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	EB03(20160727)
Project:	Laredo SGR	**Lab ID:**	1607317-39
Project No:	04285081.0000.00044	**Collection Date:**	07/27/16 03:35 PM
Lab Order:	1607317	**Matrix:**	EQUIP BLANK

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER			**SW6020A**					Analyst: **RO**
Lead	0.000900	0.000300	0.00100	0.000900	U	mg/L	1	08/11/16 06:20 PM
IS: Bismuth	105	0	30-120	0		%REC	1	08/11/16 06:20 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Acenaphthene	0.0000787	0.0000492	0.0000983	0.0000787	U	mg/L	1	08/03/16 11:06 PM
Acenaphthylene	0.0000787	0.0000492	0.0000983	0.0000787	U	mg/L	1	08/03/16 11:06 PM
Anthracene	0.0000787	0.0000492	0.0000983	0.0000787	U	mg/L	1	08/03/16 11:06 PM
Benzo[a]anthracene	0.0000787	0.0000492	0.0000983	0.0000787	U	mg/L	1	08/03/16 11:06 PM
Benzo[a]pyrene	0.0000787	0.0000492	0.0000983	0.0000787	U	mg/L	1	08/03/16 11:06 PM
Benzo[b]fluoranthene	0.0000787	0.0000492	0.0000983	0.0000787	U	mg/L	1	08/03/16 11:06 PM
Benzo[e]pyrene	0.0000787	0.0000492	0.0000983	0.0000787	U	mg/L	1	08/03/16 11:06 PM
Benzo[g,h,i]perylene	0.0000787	0.0000492	0.0000983	0.0000787	U	mg/L	1	08/03/16 11:06 PM
Benzo[j]fluoranthene	0.0000787	0.0000492	0.0000983	0.0000787	NU	mg/L	1	08/03/16 11:06 PM
Benzo[k]fluoranthene	0.0000787	0.0000492	0.0000983	0.0000787	U	mg/L	1	08/03/16 11:06 PM
Chrysene	0.0000787	0.0000492	0.0000983	0.0000787	U	mg/L	1	08/03/16 11:06 PM
Dibenz[a,h]anthracene	0.0000787	0.0000492	0.0000983	0.0000787	U	mg/L	1	08/03/16 11:06 PM
Fluoranthene	0.0000787	0.0000492	0.0000983	0.0000787	U	mg/L	1	08/03/16 11:06 PM
Fluorene	0.0000787	0.0000492	0.0000983	0.0000787	U	mg/L	1	08/03/16 11:06 PM
Indeno[1,2,3-cd]pyrene	0.0000787	0.0000492	0.0000983	0.0000787	U	mg/L	1	08/03/16 11:06 PM
Phenanthrene	0.0000787	0.0000492	0.0000983	0.0000787	U	mg/L	1	08/03/16 11:06 PM
Pyrene	0.0000787	0.0000492	0.0000983	0.0000787	U	mg/L	1	08/03/16 11:06 PM
IS: Acenaphthene-d10	107	0	50-200	0		%REC	1	08/03/16 11:06 PM
IS: Chrysene-d12	92.7	0	50-200	0		%REC	1	08/03/16 11:06 PM
IS: Naphthalene-d8	94.7	0	50-200	0		%REC	1	08/03/16 11:06 PM
IS: Perylene-d12	93.4	0	50-200	0		%REC	1	08/03/16 11:06 PM
IS: Phenanthrene-d10	114	0	50-200	0		%REC	1	08/03/16 11:06 PM
Surr: 2-Fluorobiphenyl	75.0	0	53-106	0		%REC	1	08/03/16 11:06 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	EB03(20160727)
Project:	Laredo SGR	**Lab ID:**	1607317-39
Project No:	04285081.0000.00044	**Collection Date:**	07/27/16 03:35 PM
Lab Order:	1607317	**Matrix:**	EQUIP BLANK

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Surr: 4-Terphenyl-d14	61.3	0	58-132	0		%REC	1	08/03/16 11:06 PM

Qualifiers:	*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
	C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
	E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
	MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
	RL	Reporting Limit	S	Spike Recovery outside control limits
	N	Parameter not NELAC certified		

CLIENT: Arcadis
Work Order: 1607317
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS3_160729A

Sample ID **DCS1-76274**	Batch ID: **76274**	TestNo: **SW6020A**	Units: **mg/Kg**		
SampType: **DCS**	Run ID: **ICP-MS3_160729A**	Analysis Date: **7/29/2016 1:13:00 PM**	Prep Date: **7/18/2016**		

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.249	0.300	0.2500	0	99.7	80	120	0	0	
IS: Bismuth	50.0		200.0		97.1	70	200	0	0	

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1607317
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS3_160729A

Sample ID **DCS1-76458**	Batch ID: **76458**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **DCS**	Run ID: **ICP-MS3_160729A**	Analysis Date: **7/29/2016 1:50:00 PM**	Prep Date: **7/26/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.000493	0.00100	0.000500	0	98.7	80	120	0	0	

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1607317
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS3_160809B

The QC data in batch 76687 applies to the following samples: 1607317-13A, 1607317-26A

Sample ID	**MB-76687**	Batch ID:	**76687**	TestNo:	**SW6020A**	Units:	**mg/L**
SampType:	**MBLK**	Run ID:	**ICP-MS3_160809B**	Analysis Date:	**8/9/2016 10:57:00 PM**	Prep Date:	**8/5/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.000900	0.00100								U
IS: Bismuth	0.200		0.200		89.9	30	120			

Sample ID	**LCS-76687**	Batch ID:	**76687**	TestNo:	**SW6020A**	Units:	**mg/L**
SampType:	**LCS**	Run ID:	**ICP-MS3_160809B**	Analysis Date:	**8/9/2016 11:03:00 PM**	Prep Date:	**8/5/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.200	0.00100	0.200	0	100	88	115			
IS: Bismuth	0.200		0.200		83.5	30	120			

Sample ID	**LCSD-76687**	Batch ID:	**76687**	TestNo:	**SW6020A**	Units:	**mg/L**
SampType:	**LCSD**	Run ID:	**ICP-MS3_160809B**	Analysis Date:	**8/9/2016 11:09:00 PM**	Prep Date:	**8/5/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.201	0.00100	0.200	0	101	88	115	0.498	20	
IS: Bismuth	0.200		0.200		82.3	30	120	0	0	

Sample ID	**1607337-26A PDS**	Batch ID:	**76687**	TestNo:	**SW6020A**	Units:	**mg/L**
SampType:	**PDS**	Run ID:	**ICP-MS3_160809B**	Analysis Date:	**8/10/2016 12:34:00 AM**	Prep Date:	**8/5/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.193	0.00100	0.200	0	96.6	80	120			
IS: Bismuth	0.200		0.200		84.0	30	120			

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1607317
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS3_160809B

Sample ID **ICV1-160809**	Batch ID: **R87530**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **ICV**	Run ID: **ICP-MS3_160809B**	Analysis Date: **8/9/2016 1:42:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.0966	0.00100	0.100	0	96.6	90	110			
IS: Bismuth	0.200		0.200		89.0	30	120			

Sample ID **ILCVL-160809**	Batch ID: **R87530**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **LCVL**	Run ID: **ICP-MS3_160809B**	Analysis Date: **8/9/2016 1:54:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.00106	0.00100	0.00100	0	106	80	120			
IS: Bismuth	0.200		0.200		88.8	30	120			

Sample ID **CCV5-160809**	Batch ID: **R87530**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **CCV**	Run ID: **ICP-MS3_160809B**	Analysis Date: **8/9/2016 10:34:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.203	0.00100	0.200	0	102	90	110			
IS: Bismuth	0.200		0.200		83.9	30	120			

Sample ID **LCVL5-160809**	Batch ID: **R87530**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **LCVL**	Run ID: **ICP-MS3_160809B**	Analysis Date: **8/9/2016 10:45:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.00107	0.00100	0.00100	0	107	80	120			
IS: Bismuth	0.200		0.200		86.9	30	120			

Sample ID **CCV6-160809**	Batch ID: **R87530**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **CCV**	Run ID: **ICP-MS3_160809B**	Analysis Date: **8/10/2016 12:40:00 AM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.199	0.00100	0.200	0	99.5	90	110			
IS: Bismuth	0.200		0.200		82.3	30	120			

Sample ID **LCVL6-160809**	Batch ID: **R87530**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **LCVL**	Run ID: **ICP-MS3_160809B**	Analysis Date: **8/10/2016 12:52:00 AM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.00104	0.00100	0.00100	0	104	80	120			
IS: Bismuth	0.200		0.200		86.6	30	120			

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1607317
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS3_160809B

Sample ID **CCV7-160809**	Batch ID: **R87530**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **CCV**	Run ID: **ICP-MS3_160809B**	Analysis Date: **8/10/2016 2:34:00 AM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.201	0.00100	0.200	0	101	90	110			
IS: Bismuth	0.200		0.200		82.3	30	120			

Sample ID **LCVL7-160809**	Batch ID: **R87530**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **LCVL**	Run ID: **ICP-MS3_160809B**	Analysis Date: **8/10/2016 2:46:00 AM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.00105	0.00100	0.00100	0	105	80	120			
IS: Bismuth	0.200		0.200		86.2	30	120			

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1607317
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS3_160810B

The QC data in batch 76690 applies to the following samples: 1607317-01A, 1607317-02A, 1607317-03A, 1607317-04A, 1607317-05A, 1607317-06A, 1607317-07A

Sample ID **MB-76690**	Batch ID: **76690**	TestNo: **SW6020A**	Units: **mg/Kg-dry**
SampType: **MBLK**	Run ID: **ICP-MS3_160810B**	Analysis Date: **8/10/2016 4:02:00 PM**	Prep Date: **8/5/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.150	0.300								U
IS: Bismuth	50.0		200.0		96.0	30	120			

Sample ID **LCS-76690**	Batch ID: **76690**	TestNo: **SW6020A**	Units: **mg/Kg-dry**
SampType: **LCS**	Run ID: **ICP-MS3_160810B**	Analysis Date: **8/10/2016 4:08:00 PM**	Prep Date: **8/5/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	51.6	0.300	50.00	0	103	84	118			
IS: Bismuth	50.0		200.0		93.0	30	120			

Sample ID **LCSD-76690**	Batch ID: **76690**	TestNo: **SW6020A**	Units: **mg/Kg-dry**
SampType: **LCSD**	Run ID: **ICP-MS3_160810B**	Analysis Date: **8/10/2016 4:14:00 PM**	Prep Date: **8/5/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	51.8	0.300	50.00	0	104	84	118	0.193	20	
IS: Bismuth	50.0		200.0		92.3	30	120	0	0	

Sample ID **1607314-03A SD**	Batch ID: **76690**	TestNo: **SW6020A**	Units: **mg/Kg-dry**
SampType: **SD**	Run ID: **ICP-MS3_160810B**	Analysis Date: **8/10/2016 4:31:00 PM**	Prep Date: **8/5/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	18.7	1.28	0	18.89				1.03	10	
IS: Bismuth	214		170.9		93.6	30	120	0	0	

Sample ID **1607314-03A PDS**	Batch ID: **76690**	TestNo: **SW6020A**	Units: **mg/Kg-dry**
SampType: **PDS**	Run ID: **ICP-MS3_160810B**	Analysis Date: **8/10/2016 5:55:00 PM**	Prep Date: **8/5/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	63.1	0.256	42.74	18.89	103	80	120			
IS: Bismuth	42.7		854.7		84.2	30	120			

Sample ID **1607314-03A MS**	Batch ID: **76690**	TestNo: **SW6020A**	Units: **mg/Kg-dry**
SampType: **MS**	Run ID: **ICP-MS3_160810B**	Analysis Date: **8/10/2016 6:00:00 PM**	Prep Date: **8/5/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	72.4	0.291	48.54	18.89	110	84	118			
IS: Bismuth	48.5		194.2		83.1	30	120			

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1607317
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS3_160810B

Sample ID **1607314-03A MSD**	Batch ID: **76690**	TestNo: **SW6020A**	Units: **mg/Kg-dry**		
SampType: **MSD**	Run ID: **ICP-MS3_160810B**	Analysis Date: **8/10/2016 6:06:00 PM**	Prep Date: **8/5/2016**		

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	72.5	0.278	46.30	18.89	116	84	118	0.233	20	
IS: Bismuth	46.3		185.2		82.0	30	120	0	0	

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1607317
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS3_160810B

The QC data in batch 76716 applies to the following samples: 1607317-08A, 1607317-09A, 1607317-10A, 1607317-11A, 1607317-12A, 1607317-14A, 1607317-15A, 1607317-16A, 1607317-17A, 1607317-18A, 1607317-19A, 1607317-20A, 1607317-21A, 1607317-22A, 1607317-23A, 1607317-24A, 1607317-25A, 1607317-28A, 1607317-29A, 1607317-30A

Sample ID **MB-76716** Batch ID: **76716** TestNo: **SW6020A** Units: **mg/Kg-dry**
SampType: **MBLK** Run ID: **ICP-MS3_160810B** Analysis Date: **8/10/2016 8:05:00 PM** Prep Date: **8/8/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.150	0.300								U
IS: Bismuth	50.0		200.0		79.5	30	120			

Sample ID **LCS-76716** Batch ID: **76716** TestNo: **SW6020A** Units: **mg/Kg-dry**
SampType: **LCS** Run ID: **ICP-MS3_160810B** Analysis Date: **8/10/2016 8:11:00 PM** Prep Date: **8/8/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	50.8	0.300	50.00	0	102	84	118			
IS: Bismuth	50.0		200.0		75.3	30	120			

Sample ID **LCSD-76716** Batch ID: **76716** TestNo: **SW6020A** Units: **mg/Kg-dry**
SampType: **LCSD** Run ID: **ICP-MS3_160810B** Analysis Date: **8/10/2016 8:17:00 PM** Prep Date: **8/8/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	49.6	0.300	50.00	0	99.3	84	118	2.19	20	
IS: Bismuth	50.0		200.0		76.4	30	120	0	0	

Sample ID **1607317-09A SD** Batch ID: **76716** TestNo: **SW6020A** Units: **mg/Kg-dry**
SampType: **SD** Run ID: **ICP-MS3_160810B** Analysis Date: **8/10/2016 8:35:00 PM** Prep Date: **8/8/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	29.8	1.40	0	30.58				2.67	10	
IS: Bismuth	234		186.9		75.5	30	120	0	0	

Sample ID **1607317-09A PDS** Batch ID: **76716** TestNo: **SW6020A** Units: **mg/Kg-dry**
SampType: **PDS** Run ID: **ICP-MS3_160810B** Analysis Date: **8/10/2016 9:41:00 PM** Prep Date: **8/8/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	78.2	0.280	46.73	30.58	102	80	120			
IS: Bismuth	46.7		934.6		73.6	30	120			

Sample ID **1607317-09A MS** Batch ID: **76716** TestNo: **SW6020A** Units: **mg/Kg-dry**
SampType: **MS** Run ID: **ICP-MS3_160810B** Analysis Date: **8/10/2016 9:46:00 PM** Prep Date: **8/8/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	85.7	0.265	44.25	30.58	125	84	118			S
IS: Bismuth	44.2		177.0		71.7	30	120			

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1607317
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS3_160810B

Sample ID **1607317-09A MSD**	Batch ID: **76716**	TestNo: **SW6020A**	Units: **mg/Kg-dry**		
SampType: **MSD**	Run ID: **ICP-MS3_160810B**	Analysis Date: **8/10/2016 9:52:00 PM**	Prep Date: **8/8/2016**		

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	83.3	0.265	44.25	30.58	119	84	118	2.85	20	S
IS: Bismuth	44.2		177.0		69.5	30	120	0	0	

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1607317
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS3_160810B

The QC data in batch 76717 applies to the following samples: 1607317-27A, 1607317-31A, 1607317-32A, 1607317-33A, 1607317-34A, 1607317-35A, 1607317-36A, 1607317-37A, 1607317-38A

Sample ID **MB-76717**	Batch ID: **76717**	TestNo: **SW6020A**	Units: **mg/Kg-dry**
SampType: **MBLK**	Run ID: **ICP-MS3_160810B**	Analysis Date: **8/10/2016 11:52:00 PM**	Prep Date: **8/8/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.150	0.300								U
IS: Bismuth	50.0		200.0		65.0	30	120			

Sample ID **LCS-76717**	Batch ID: **76717**	TestNo: **SW6020A**	Units: **mg/Kg-dry**
SampType: **LCS**	Run ID: **ICP-MS3_160810B**	Analysis Date: **8/10/2016 11:58:00 PM**	Prep Date: **8/8/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	49.7	0.300	50.00	0	99.4	84	118			
IS: Bismuth	50.0		200.0		64.6	30	120			

Sample ID **LCSD-76717**	Batch ID: **76717**	TestNo: **SW6020A**	Units: **mg/Kg-dry**
SampType: **LCSD**	Run ID: **ICP-MS3_160810B**	Analysis Date: **8/11/2016 12:04:00 AM**	Prep Date: **8/8/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	50.3	0.300	50.00	0	101	84	118	1.20	20	
IS: Bismuth	50.0		200.0		62.3	30	120	0	0	

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1607317
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS3_160810B

Sample ID **ICV1-160810**	Batch ID: **R87549**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **ICV**	Run ID: **ICP-MS3_160810B**	Analysis Date: **8/10/2016 12:47:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.0975	0.00100	0.100	0	97.5	90	110			
IS: Bismuth	0.200		0.200		93.1	30	120			

Sample ID **ICV1-160810**	Batch ID: **R87549**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **ICV**	Run ID: **ICP-MS3_160810B**	Analysis Date: **8/10/2016 12:59:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.0977	0.00100	0.100	0	97.7	90	110			
IS: Bismuth	0.200		0.200		91.1	30	120			

Sample ID **ILCVL-160810**	Batch ID: **R87549**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **LCVL**	Run ID: **ICP-MS3_160810B**	Analysis Date: **8/10/2016 1:05:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.00110	0.00100	0.00100	0	110	80	120			
IS: Bismuth	0.200		0.200		91.5	30	120			

Sample ID **CCV1-160810**	Batch ID: **R87549**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **CCV**	Run ID: **ICP-MS3_160810B**	Analysis Date: **8/10/2016 3:38:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.204	0.00100	0.200	0	102	90	110			
IS: Bismuth	0.200		0.200		93.0	30	120			

Sample ID **LCVL1-160810**	Batch ID: **R87549**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **LCVL**	Run ID: **ICP-MS3_160810B**	Analysis Date: **8/10/2016 3:50:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.00113	0.00100	0.00100	0	113	80	120			
IS: Bismuth	0.200		0.200		94.4	30	120			

Sample ID **CCV2-160810**	Batch ID: **R87549**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **CCV**	Run ID: **ICP-MS3_160810B**	Analysis Date: **8/10/2016 6:12:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.208	0.00100	0.200	0	104	90	110			
IS: Bismuth	0.200		0.200		83.3	30	120			

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1607317
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS3_160810B

Sample ID **LCVL2-160810**	Batch ID: **R87549**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **LCVL**	Run ID: **ICP-MS3_160810B**	Analysis Date: **8/10/2016 6:24:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.00116	0.00100	0.00100	0	116	80	120			
IS: Bismuth	0.200		0.200		84.8	30	120			

Sample ID **CCV3-160810**	Batch ID: **R87549**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **CCV**	Run ID: **ICP-MS3_160810B**	Analysis Date: **8/10/2016 7:41:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.203	0.00100	0.200	0	102	90	110			
IS: Bismuth	0.200		0.200		77.4	30	120			

Sample ID **LCVL3-160810**	Batch ID: **R87549**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **LCVL**	Run ID: **ICP-MS3_160810B**	Analysis Date: **8/10/2016 7:53:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.00109	0.00100	0.00100	0	109	80	120			
IS: Bismuth	0.200		0.200		80.7	30	120			

Sample ID **CCV4-160810**	Batch ID: **R87549**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **CCV**	Run ID: **ICP-MS3_160810B**	Analysis Date: **8/10/2016 9:58:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.199	0.00100	0.200	0	99.6	90	110			
IS: Bismuth	0.200		0.200		75.2	30	120			

Sample ID **LCVL4-160810**	Batch ID: **R87549**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **LCVL**	Run ID: **ICP-MS3_160810B**	Analysis Date: **8/10/2016 10:10:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.00113	0.00100	0.00100	0	113	80	120			
IS: Bismuth	0.200		0.200		74.7	30	120			

Sample ID **CCV5-160810**	Batch ID: **R87549**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **CCV**	Run ID: **ICP-MS3_160810B**	Analysis Date: **8/10/2016 11:28:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.202	0.00100	0.200	0	101	90	110			
IS: Bismuth	0.200		0.200		75.5	30	120			

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1607317
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS3_160810B

Sample ID **LCVL5-160810**	Batch ID: **R87549**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **LCVL**	Run ID: **ICP-MS3_160810B**	Analysis Date: **8/10/2016 11:40:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.00101	0.00100	0.00100	0	101	80	120			
IS: Bismuth	0.200		0.200		70.3	30	120			

Sample ID **CCV6-160810**	Batch ID: **R87549**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **CCV**	Run ID: **ICP-MS3_160810B**	Analysis Date: **8/11/2016 2:10:00 AM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.202	0.00100	0.200	0	101	90	110			
IS: Bismuth	0.200		0.200		59.0	30	120			

Sample ID **LCVL-160810**	Batch ID: **R87549**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **LCVL**	Run ID: **ICP-MS3_160810B**	Analysis Date: **8/11/2016 2:22:00 AM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.00112	0.00100	0.00100	0	112	80	120			
IS: Bismuth	0.200		0.200		61.2	30	120			

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1607317
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS4_160725C

Sample ID **DCS1-76312**	Batch ID: **76312**	TestNo: **SW6020A**	Units: **mg/Kg**
SampType: **DCS**	Run ID: **ICP-MS4_160725C**	Analysis Date: **7/25/2016 4:17:00 PM**	Prep Date: **7/20/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.236	0.300	0.2500	0	94.4	80	120	0	0	

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1607317
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS4_160728A

Sample ID **DCS1-76458**	Batch ID: **76458**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **DCS**	Run ID: **ICP-MS4_160728A**	Analysis Date: **7/28/2016 11:11:00 AM**	Prep Date: **7/26/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.000500	0.00100	0.000500	0	100	80	120	0	0	

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1607317
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS4_160811D

The QC data in batch 76717 applies to the following samples: 1607317-27A, 1607317-31A, 1607317-32A, 1607317-33A, 1607317-34A, 1607317-35A, 1607317-36A, 1607317-37A, 1607317-38A

Sample ID **1607317-27A SD**	Batch ID: **76717**	TestNo: **SW6020A**	Units: **mg/Kg-dry**
SampType: **SD**	Run ID: **ICP-MS4_160811D**	Analysis Date: **8/11/2016 4:26:00 PM**	Prep Date: **8/8/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	49.1	1.43	0	47.40				3.62	10	
IS: Bismuth	238		190.5		104	30	120	0	0	

Sample ID **1607317-27A PDS**	Batch ID: **76717**	TestNo: **SW6020A**	Units: **mg/Kg-dry**
SampType: **PDS**	Run ID: **ICP-MS4_160811D**	Analysis Date: **8/11/2016 4:28:00 PM**	Prep Date: **8/8/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	95.8	0.286	47.62	47.40	102	80	120			
IS: Bismuth	47.6		952.4		103	30	120			

Sample ID **1607317-27A MS**	Batch ID: **76717**	TestNo: **SW6020A**	Units: **mg/Kg-dry**
SampType: **MS**	Run ID: **ICP-MS4_160811D**	Analysis Date: **8/11/2016 4:30:00 PM**	Prep Date: **8/8/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	162	0.273	45.45	47.40	252	84	118			S
IS: Bismuth	45.5		181.8		102	30	120			

Sample ID **1607317-27A MSD**	Batch ID: **76717**	TestNo: **SW6020A**	Units: **mg/Kg-dry**
SampType: **MSD**	Run ID: **ICP-MS4_160811D**	Analysis Date: **8/11/2016 4:32:00 PM**	Prep Date: **8/8/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	152	0.283	47.17	47.40	222	84	118	6.29	20	S
IS: Bismuth	47.2		188.7		101	30	120	0	0	

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1607317
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS4_160811D

The QC data in batch 76774 applies to the following samples: 1607317-39A

Sample ID	MB-76774	Batch ID:	76774	TestNo:	SW6020A	Units:	mg/L
SampType:	MBLK	Run ID:	ICP-MS4_160811D	Analysis Date:	8/11/2016 6:12:00 PM	Prep Date:	8/11/2016

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.000900	0.00100								U
IS: Bismuth	0.200		0.200		104	30	120			

Sample ID	LCS-76774	Batch ID:	76774	TestNo:	SW6020A	Units:	mg/L
SampType:	LCS	Run ID:	ICP-MS4_160811D	Analysis Date:	8/11/2016 6:14:00 PM	Prep Date:	8/11/2016

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.201	0.00100	0.200	0	101	88	115			
IS: Bismuth	0.200		0.200		102	30	120			

Sample ID	LCSD-76774	Batch ID:	76774	TestNo:	SW6020A	Units:	mg/L
SampType:	LCSD	Run ID:	ICP-MS4_160811D	Analysis Date:	8/11/2016 6:16:00 PM	Prep Date:	8/11/2016

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.205	0.00100	0.200	0	102	88	115	1.80	20	
IS: Bismuth	0.200		0.200		102	30	120	0	0	

Sample ID	1607317-39A SD	Batch ID:	76774	TestNo:	SW6020A	Units:	mg/L
SampType:	SD	Run ID:	ICP-MS4_160811D	Analysis Date:	8/11/2016 6:22:00 PM	Prep Date:	8/11/2016

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.00450	0.00500	0	0				0	10	U
IS: Bismuth	1.00		0.200		102	30	120	0	0	

Sample ID	1607317-39A PDS	Batch ID:	76774	TestNo:	SW6020A	Units:	mg/L
SampType:	PDS	Run ID:	ICP-MS4_160811D	Analysis Date:	8/11/2016 6:24:00 PM	Prep Date:	8/11/2016

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.196	0.00100	0.200	0	97.9	80	120			
IS: Bismuth	0.200		0.200		103	30	120			

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS4_160811D

Sample ID **ICV-160811**	Batch ID: **R87573**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **ICV**	Run ID: **ICP-MS4_160811D**	Analysis Date: **8/11/2016 2:20:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.103	0.00100	0.100	0	103	90	110			
IS: Bismuth	0.200		0.200		100	30	120			

Sample ID **LCVL-160811**	Batch ID: **R87573**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **LCVL**	Run ID: **ICP-MS4_160811D**	Analysis Date: **8/11/2016 2:25:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.00110	0.00100	0.00100	0	110	80	120			
IS: Bismuth	0.200		0.200		102	30	120			

Sample ID **CCV2-160811**	Batch ID: **R87573**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **CCV**	Run ID: **ICP-MS4_160811D**	Analysis Date: **8/11/2016 3:57:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.207	0.00100	0.200	0	104	90	110			
IS: Bismuth	0.200		0.200		105	30	120			

Sample ID **LCVL2-160811**	Batch ID: **R87573**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **LCVL**	Run ID: **ICP-MS4_160811D**	Analysis Date: **8/11/2016 4:08:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.00108	0.00100	0.00100	0	108	80	120			
IS: Bismuth	0.200		0.200		103	30	120			

Sample ID **CCV3-160811**	Batch ID: **R87573**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **CCV**	Run ID: **ICP-MS4_160811D**	Analysis Date: **8/11/2016 4:34:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.208	0.00100	0.200	0	104	90	110			
IS: Bismuth	0.200		0.200		103	30	120			

Sample ID **LCVL3-160811**	Batch ID: **R87573**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **LCVL**	Run ID: **ICP-MS4_160811D**	Analysis Date: **8/11/2016 4:44:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.00111	0.00100	0.00100	0	111	80	120			
IS: Bismuth	0.200		0.200		104	30	120			

CLIENT: Arcadis
Work Order: 1607317
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS4_160811D

Sample ID **CCV6-160811**	Batch ID: **R87573**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **CCV**	Run ID: **ICP-MS4_160811D**	Analysis Date: **8/11/2016 6:04:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.211	0.00100	0.200	0	105	90	110			
IS: Bismuth	0.200		0.200		100	30	120			

Sample ID **LCVL6-160811**	Batch ID: **R87573**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **LCVL**	Run ID: **ICP-MS4_160811D**	Analysis Date: **8/11/2016 6:08:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.00111	0.00100	0.00100	0	111	80	120			
IS: Bismuth	0.200		0.200		102	30	120			

Sample ID **CCV7-160811**	Batch ID: **R87573**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **CCV**	Run ID: **ICP-MS4_160811D**	Analysis Date: **8/11/2016 6:26:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.207	0.00100	0.200	0	104	90	110			
IS: Bismuth	0.200		0.200		101	30	120			

Sample ID **LCVL7-160811**	Batch ID: **R87573**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **LCVL**	Run ID: **ICP-MS4_160811D**	Analysis Date: **8/11/2016 6:30:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.00111	0.00100	0.00100	0	111	80	120			
IS: Bismuth	0.200		0.200		102	30	120			

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1607317
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: GCMS6_160802A

Sample ID **DCS-76288**	Batch ID: **76288**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **DCS**	Run ID: **GCMS6_160802A**	Analysis Date: **8/3/2016 9:01:00 AM**	Prep Date: **7/18/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.00764	0.0100	0.01000	0	76.4	20	200	0	0	
Acenaphthylene	0.00762	0.0100	0.01000	0	76.2	20	200	0	0	
Anthracene	0.00800	0.0100	0.01000	0	80.0	20	200	0	0	
Benzo[a]anthracene	0.00849	0.0100	0.01000	0	84.9	20	200	0	0	
Benzo[a]pyrene	0.00833	0.0100	0.01000	0	83.3	20	200	0	0	
Benzo[b]fluoranthene	0.00835	0.0100	0.01000	0	83.5	20	200	0	0	
Benzo[e]pyrene	0.00941	0.0100	0.01000	0	94.1	20	200	0	0	
Benzo[g,h,i]perylene	0.00998	0.0100	0.01000	0	99.8	20	200	0	0	
Benzo[j]fluoranthene	0.00886	0.0100	0.01000	0	88.6	20	200	0	0	N
Benzo[k]fluoranthene	0.00876	0.0100	0.01000	0	87.6	20	200	0	0	
Chrysene	0.00879	0.0100	0.01000	0	87.9	20	200	0	0	
Dibenz[a,h]anthracene	0.00939	0.0100	0.01000	0	93.9	20	200	0	0	
Fluoranthene	0.00799	0.0100	0.01000	0	79.9	20	200	0	0	
Fluorene	0.00780	0.0100	0.01000	0	78.0	20	200	0	0	
Indeno[1,2,3-cd]pyrene	0.00980	0.0100	0.01000	0	98.0	20	200	0	0	
Phenanthrene	0.00897	0.0100	0.01000	0	89.7	20	200	0	0	
Pyrene	0.00754	0.0100	0.01000	0	75.4	20	200	0	0	

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1607317
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: GCMS6_160808A

The QC data in batch 76583 applies to the following samples: 1607317-01A, 1607317-02A, 1607317-03A, 1607317-04A

Sample ID **LCS-76583** Batch ID: **76583** TestNo: **SW8270D-LL** Units: **mg/Kg-dry**
SampType: **LCS** Run ID: **GCMS6_160808A** Analysis Date: **8/8/2016 11:30:00 AM** Prep Date: **8/1/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.804	0.0100	1.000	0	80.4	44	111			
Acenaphthylene	0.795	0.0100	1.000	0	79.5	39	116			
Anthracene	0.768	0.0100	1.000	0	76.8	50	114			
Benzo[a]anthracene	0.831	0.0100	1.000	0	83.1	54	122			
Benzo[a]pyrene	0.804	0.0100	1.000	0	80.4	50	125			
Benzo[b]fluoranthene	0.843	0.0100	1.000	0	84.3	53	128			
Benzo[e]pyrene	0.850	0.0100	1.000	0	85.0	43	140			
Benzo[g,h,i]perylene	0.810	0.0100	1.000	0	81.0	49	127			
Benzo[j]fluoranthene	0.860	0.0100	1.000	0	86.0	45	125			N
Benzo[k]fluoranthene	0.845	0.0100	1.000	0	84.5	56	123			
Chrysene	0.796	0.0100	1.000	0	79.6	57	118			
Dibenz[a,h]anthracene	0.847	0.0100	1.000	0	84.7	50	129			
Fluoranthene	0.818	0.0100	1.000	0	81.8	55	119			
Fluorene	0.813	0.0100	1.000	0	81.3	47	114			
Indeno[1,2,3-cd]pyrene	0.853	0.0100	1.000	0	85.3	49	130			
Phenanthrene	0.803	0.0100	1.000	0	80.3	49	113			
Pyrene	0.814	0.0100	1.000	0	81.4	55	117			
IS: Acenaphthene-d10	4.00		4.000		125	50	200			
IS: Chrysene-d12	4.00		4.000		110	50	200			
IS: Naphthalene-d8	4.00		4.000		110	50	200			
IS: Perylene-d12	4.00		4.000		110	50	200			
IS: Phenanthrene-d10	4.00		4.000		98.4	50	200			
Surr: 2-Fluorobiphenyl	0.759		1.000		75.9	46	115			
Surr: 4-Terphenyl-d14	0.893		1.000		89.3	58	133			

Sample ID **MB-76583** Batch ID: **76583** TestNo: **SW8270D-LL** Units: **mg/Kg-dry**
SampType: **MBLK** Run ID: **GCMS6_160808A** Analysis Date: **8/8/2016 12:10:00 PM** Prep Date: **8/1/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.00750	0.0100								U
Acenaphthylene	0.00750	0.0100								U
Anthracene	0.00750	0.0100								U
Benzo[a]anthracene	0.00750	0.0100								U
Benzo[a]pyrene	0.00750	0.0100								U
Benzo[b]fluoranthene	0.00750	0.0100								U
Benzo[e]pyrene	0.00750	0.0100								U
Benzo[g,h,i]perylene	0.00750	0.0100								U
Benzo[j]fluoranthene	0.00750	0.0100								NU
Benzo[k]fluoranthene	0.00750	0.0100								U
Chrysene	0.00750	0.0100								U

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1607317
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: GCMS6_160808A

Sample ID **MB-76583**	Batch ID: **76583**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **MBLK**	Run ID: **GCMS6_160808A**	Analysis Date: **8/8/2016 12:10:00 PM**	Prep Date: **8/1/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Dibenz[a,h]anthracene	0.00750	0.0100								U
Fluoranthene	0.00750	0.0100								U
Fluorene	0.00750	0.0100								U
Indeno[1,2,3-cd]pyrene	0.00750	0.0100								U
Phenanthrene	0.00750	0.0100								U
Pyrene	0.00750	0.0100								U
IS: Acenaphthene-d10	4.00		4.000		132	50	200			
IS: Chrysene-d12	4.00		4.000		115	50	200			
IS: Naphthalene-d8	4.00		4.000		116	50	200			
IS: Perylene-d12	4.00		4.000		114	50	200			
IS: Phenanthrene-d10	4.00		4.000		102	50	200			
Surr: 2-Fluorobiphenyl	0.732		1.000		73.2	46	115			
Surr: 4-Terphenyl-d14	0.840		1.000		84.0	58	133			

Sample ID **SB-160808**	Batch ID: **76583**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **SBLK**	Run ID: **GCMS6_160808A**	Analysis Date: **8/8/2016 11:41:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.00750	0.0100	0							U
Acenaphthylene	0.00750	0.0100	0							U
Anthracene	0.00750	0.0100	0							U
Benzo[a]anthracene	0.00750	0.0100	0							U
Benzo[a]pyrene	0.00750	0.0100	0							U
Benzo[b]fluoranthene	0.00750	0.0100	0							U
Benzo[e]pyrene	0.00750	0.0100	0							U
Benzo[g,h,i]perylene	0.00750	0.0100	0							U
Benzo[j]fluoranthene	0.00750	0.0100	0							NU
Benzo[k]fluoranthene	0.00750	0.0100	0							U
Chrysene	0.00750	0.0100	0							U
Dibenz[a,h]anthracene	0.00750	0.0100	0							U
Fluoranthene	0.00750	0.0100	0							U
Fluorene	0.00750	0.0100	0							U
Indeno[1,2,3-cd]pyrene	0.00750	0.0100	0							U
Phenanthrene	0.00750	0.0100	0							U
Pyrene	0.00750	0.0100	0							U
IS: Acenaphthene-d10	4.00		0							
IS: Chrysene-d12	4.00		0							
IS: Naphthalene-d8	4.00		0							
IS: Perylene-d12	4.00		0							
IS: Phenanthrene-d10	4.00		0							
Surr: 2-Fluorobiphenyl	0.000110		0							

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1607317
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: GCMS6_160808A

Sample ID **SB-160808**	Batch ID: **76583**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **SBLK**	Run ID: **GCMS6_160808A**	Analysis Date: **8/8/2016 11:41:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Terphenyl-d14	0.0000100		0							

Sample ID **1607314-03AMS**	Batch ID: **76583**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **MS**	Run ID: **GCMS6_160808A**	Analysis Date: **8/9/2016 5:05:00 AM**	Prep Date: **8/1/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.722	0.0976	0.9756	0	74.0	44	111			
Acenaphthylene	0.688	0.0976	0.9756	0	70.5	39	116			
Anthracene	0.682	0.0976	0.9756	0	69.9	50	114			
Benzo[a]anthracene	0.766	0.0976	0.9756	0	78.5	54	122			
Benzo[a]pyrene	0.810	0.0976	0.9756	0.05298	77.6	50	125			
Benzo[b]fluoranthene	0.806	0.0976	0.9756	0.05070	77.4	53	128			
Benzo[e]pyrene	0.835	0.0976	0.9756	0	85.6	43	140			
Benzo[g,h,i]perylene	0.884	0.0976	0.9756	0	90.6	49	127			
Benzo[j]fluoranthene	0.798	0.0976	0.9756	0	81.8	45	125			N
Benzo[k]fluoranthene	0.799	0.0976	0.9756	0	81.9	56	123			
Chrysene	0.796	0.0976	0.9756	0	81.6	57	118			
Dibenz[a,h]anthracene	0.800	0.0976	0.9756	0	82.0	50	129			
Fluoranthene	0.808	0.0976	0.9756	0.06173	76.5	55	119			
Fluorene	0.720	0.0976	0.9756	0	73.8	47	114			
Indeno[1,2,3-cd]pyrene	0.856	0.0976	0.9756	0	87.8	49	130			
Phenanthrene	0.763	0.0976	0.9756	0	78.2	49	113			
Pyrene	0.821	0.0976	0.9756	0.05845	78.1	55	117			
IS: Acenaphthene-d10	39.0		3.902		134	50	200			
IS: Chrysene-d12	39.0		3.902		114	50	200			
IS: Naphthalene-d8	39.0		3.902		106	50	200			
IS: Perylene-d12	39.0		3.902		115	50	200			
IS: Phenanthrene-d10	39.0		3.902		97.8	50	200			
Surr: 2-Fluorobiphenyl	0.682		0.9756		69.9	46	115			
Surr: 4-Terphenyl-d14	0.747		0.9756		76.5	58	133			

Sample ID **1607314-03AMSD**	Batch ID: **76583**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **MSD**	Run ID: **GCMS6_160808A**	Analysis Date: **8/9/2016 5:45:00 AM**	Prep Date: **8/1/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.736	0.0999	0.9990	0	73.7	44	111	1.95	20	
Acenaphthylene	0.699	0.0999	0.9990	0	70.0	39	116	1.63	20	
Anthracene	0.690	0.0999	0.9990	0	69.1	50	114	1.22	20	
Benzo[a]anthracene	0.778	0.0999	0.9990	0	77.9	54	122	1.63	20	
Benzo[a]pyrene	0.800	0.0999	0.9990	0.05298	74.7	50	125	1.30	20	
Benzo[b]fluoranthene	0.829	0.0999	0.9990	0.05070	77.9	53	128	2.79	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1607317
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: GCMS6_160808A

Sample ID **1607314-03AMSD**	Batch ID: **76583**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **MSD**	Run ID: **GCMS6_160808A**	Analysis Date: **8/9/2016 5:45:00 AM**	Prep Date: **8/1/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzo[e]pyrene	0.833	0.0999	0.9990	0	83.4	43	140	0.223	20	
Benzo[g,h,i]perylene	0.892	0.0999	0.9990	0	89.3	49	127	0.835	20	
Benzo[j]fluoranthene	0.801	0.0999	0.9990	0	80.1	45	125	0.368	20	N
Benzo[k]fluoranthene	0.804	0.0999	0.9990	0	80.4	56	123	0.607	20	
Chrysene	0.793	0.0999	0.9990	0	79.4	57	118	0.352	20	
Dibenz[a,h]anthracene	0.808	0.0999	0.9990	0	80.9	50	129	1.06	20	
Fluoranthene	0.804	0.0999	0.9990	0.06173	74.3	55	119	0.498	20	
Fluorene	0.734	0.0999	0.9990	0	73.5	47	114	1.95	20	
Indeno[1,2,3-cd]pyrene	0.867	0.0999	0.9990	0	86.8	49	130	1.19	20	
Phenanthrene	0.754	0.0999	0.9990	0	75.5	49	113	1.20	20	
Pyrene	0.804	0.0999	0.9990	0.05845	74.6	55	117	2.05	20	
IS: Acenaphthene-d10	40.0		3.996		135	50	200	0	0	
IS: Chrysene-d12	40.0		3.996		114	50	200	0	0	
IS: Naphthalene-d8	40.0		3.996		106	50	200	0	0	
IS: Perylene-d12	40.0		3.996		116	50	200	0	0	
IS: Phenanthrene-d10	40.0		3.996		97.2	50	200	0	0	
Surr: 2-Fluorobiphenyl	0.721		0.9990		72.1	46	115	0	0	
Surr: 4-Terphenyl-d14	0.775		0.9990		77.6	58	133	0	0	

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1607317
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: GCMS6_160808A

Sample ID **ICV-160808**	Batch ID: **R87483**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **ICV**	Run ID: **GCMS6_160808A**	Analysis Date: **8/8/2016 10:50:00 AM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	1.89	0.0100	2.000	0	94.5	80	120			
Acenaphthylene	1.89	0.0100	2.000	0	94.7	80	120			
Anthracene	1.81	0.0100	2.000	0	90.6	80	120			
Benzo[a]anthracene	1.90	0.0100	2.000	0	95.2	80	120			
Benzo[a]pyrene	1.90	0.0100	2.000	0	95.2	80	120			
Benzo[b]fluoranthene	1.92	0.0100	2.000	0	96.0	80	120			
Benzo[e]pyrene	1.90	0.0100	2.000	0	95.2	80	120			
Benzo[g,h,i]perylene	1.83	0.0100	2.000	0	91.6	80	120			
Benzo[j]fluoranthene	1.93	0.0100	2.000	0	96.3	80	120			N
Benzo[k]fluoranthene	1.96	0.0100	2.000	0	97.9	80	120			
Chrysene	1.86	0.0100	2.000	0	92.9	80	120			
Dibenz[a,h]anthracene	1.93	0.0100	2.000	0	96.5	80	120			
Fluoranthene	1.78	0.0100	2.000	0	88.9	80	120			
Fluorene	1.90	0.0100	2.000	0	95.2	80	120			
Indeno[1,2,3-cd]pyrene	1.91	0.0100	2.000	0	95.3	80	120			
Phenanthrene	1.82	0.0100	2.000	0	91.2	80	120			
Pyrene	1.79	0.0100	2.000	0	89.4	80	120			
IS: Acenaphthene-d10	4.00		4.000		145	50	200			
IS: Chrysene-d12	4.00		4.000		125	50	200			
IS: Naphthalene-d8	4.00		4.000		109	50	200			
IS: Perylene-d12	4.00		4.000		132	50	200			
IS: Phenanthrene-d10	4.00		4.000		107	50	200			
Surr: 2-Fluorobiphenyl	1.77		2.000		88.4	65	120			
Surr: 4-Terphenyl-d14	1.92		2.000		95.9	65	120			

Sample ID **ICV2-160808**	Batch ID: **R87483**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **ICV**	Run ID: **GCMS6_160808A**	Analysis Date: **8/8/2016 10:19:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	1.89	0.0100	2.000	0	94.7	80	120			
Acenaphthylene	1.86	0.0100	2.000	0	93.2	80	120			
Anthracene	1.79	0.0100	2.000	0	89.4	80	120			
Benzo[a]anthracene	1.89	0.0100	2.000	0	94.6	80	120			
Benzo[a]pyrene	1.90	0.0100	2.000	0	95.0	80	120			
Benzo[b]fluoranthene	1.90	0.0100	2.000	0	95.2	80	120			
Benzo[e]pyrene	1.92	0.0100	2.000	0	95.9	80	120			
Benzo[g,h,i]perylene	2.03	0.0100	2.000	0	102	80	120			
Benzo[j]fluoranthene	1.95	0.0100	2.000	0	97.6	80	120			N
Benzo[k]fluoranthene	1.95	0.0100	2.000	0	97.3	80	120			
Chrysene	1.86	0.0100	2.000	0	92.8	80	120			
Dibenz[a,h]anthracene	2.06	0.0100	2.000	0	103	80	120			

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1607317
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: GCMS6_160808A

Sample ID **ICV2-160808**	Batch ID: **R87483**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **ICV**	Run ID: **GCMS6_160808A**	Analysis Date: **8/8/2016 10:19:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoranthene	1.75	0.0100	2.000	0	87.7	80	120			
Fluorene	1.89	0.0100	2.000	0	94.6	80	120			
Indeno[1,2,3-cd]pyrene	2.03	0.0100	2.000	0	101	80	120			
Phenanthrene	1.81	0.0100	2.000	0	90.5	80	120			
Pyrene	1.77	0.0100	2.000	0	88.5	80	120			
IS: Acenaphthene-d10	4.00		4.000		145	50	200			
IS: Chrysene-d12	4.00		4.000		126	50	200			
IS: Naphthalene-d8	4.00		4.000		111	50	200			
IS: Perylene-d12	4.00		4.000		130	50	200			
IS: Phenanthrene-d10	4.00		4.000		108	50	200			
Surr: 2-Fluorobiphenyl	1.77		2.000		88.7	65	120			
Surr: 4-Terphenyl-d14	1.90		2.000		95.1	65	120			

Sample ID **CCV1-160808**	Batch ID: **R87483**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **CCV**	Run ID: **GCMS6_160808A**	Analysis Date: **8/9/2016 6:25:00 AM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.966	0.0100	1.000	0	96.6	50	150			
Acenaphthylene	0.962	0.0100	1.000	0	96.2	50	150			
Anthracene	0.920	0.0100	1.000	0	92.0	50	150			
Benzo[a]anthracene	0.976	0.0100	1.000	0	97.6	50	150			
Benzo[a]pyrene	0.982	0.0100	1.000	0	98.2	50	150			
Benzo[b]fluoranthene	1.01	0.0100	1.000	0	101	50	150			
Benzo[e]pyrene	0.985	0.0100	1.000	0	98.5	50	150			
Benzo[g,h,i]perylene	1.05	0.0100	1.000	0	105	50	150			
Benzo[j]fluoranthene	0.997	0.0100	1.000	0	99.7	50	150			N
Benzo[k]fluoranthene	1.01	0.0100	1.000	0	101	50	150			
Chrysene	0.960	0.0100	1.000	0	96.0	50	150			
Dibenz[a,h]anthracene	1.06	0.0100	1.000	0	106	50	150			
Fluoranthene	0.912	0.0100	1.000	0	91.2	50	150			
Fluorene	0.961	0.0100	1.000	0	96.1	50	150			
Indeno[1,2,3-cd]pyrene	1.05	0.0100	1.000	0	105	50	150			
Phenanthrene	0.943	0.0100	1.000	0	94.3	50	150			
Pyrene	0.913	0.0100	1.000	0	91.3	50	150			
IS: Acenaphthene-d10	4.00		4.000		143	50	200			
IS: Chrysene-d12	4.00		4.000		121	50	200			
IS: Naphthalene-d8	4.00		4.000		111	50	200			
IS: Perylene-d12	4.00		4.000		124	50	200			
IS: Phenanthrene-d10	4.00		4.000		103	50	200			
Surr: 2-Fluorobiphenyl	0.902		1.000		90.2	50	150			
Surr: 4-Terphenyl-d14	0.938		1.000		93.8	50	150			

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1607317
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: GCMS6_160809A

The QC data in batch 76609 applies to the following samples: 1607317-05A, 1607317-06A, 1607317-07A, 1607317-08A, 1607317-09A, 1607317-10A, 1607317-11A, 1607317-12A, 1607317-14A, 1607317-15A, 1607317-16A, 1607317-17A, 1607317-18A, 1607317-19A, 1607317-20A, 1607317-21A, 1607317-22A, 1607317-23A, 1607317-24A, 1607317-25A

Sample ID **LCS-76609** Batch ID: **76609** TestNo: **SW8270D-LL** Units: **mg/Kg-dry**
SampType: **LCS** Run ID: **GCMS6_160809A** Analysis Date: **8/9/2016 9:35:00 AM** Prep Date: **8/2/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.759	0.0100	1.000	0	75.9	44	111			
Acenaphthylene	0.734	0.0100	1.000	0	73.4	39	116			
Anthracene	0.716	0.0100	1.000	0	71.6	50	114			
Benzo[a]anthracene	0.784	0.0100	1.000	0	78.4	54	122			
Benzo[a]pyrene	0.744	0.0100	1.000	0	74.4	50	125			
Benzo[b]fluoranthene	0.802	0.0100	1.000	0	80.2	53	128			
Benzo[e]pyrene	0.801	0.0100	1.000	0	80.1	43	140			
Benzo[g,h,i]perylene	0.833	0.0100	1.000	0	83.3	49	127			
Benzo[j]fluoranthene	0.805	0.0100	1.000	0	80.5	45	125			N
Benzo[k]fluoranthene	0.809	0.0100	1.000	0	80.9	56	123			
Chrysene	0.753	0.0100	1.000	0	75.3	57	118			
Dibenz[a,h]anthracene	0.826	0.0100	1.000	0	82.6	50	129			
Fluoranthene	0.772	0.0100	1.000	0	77.2	55	119			
Fluorene	0.750	0.0100	1.000	0	75.0	47	114			
Indeno[1,2,3-cd]pyrene	0.832	0.0100	1.000	0	83.2	49	130			
Phenanthrene	0.759	0.0100	1.000	0	75.9	49	113			
Pyrene	0.768	0.0100	1.000	0	76.8	55	117			
IS: Acenaphthene-d10	4.00		4.000		137	50	200			
IS: Chrysene-d12	4.00		4.000		114	50	200			
IS: Naphthalene-d8	4.00		4.000		120	50	200			
IS: Perylene-d12	4.00		4.000		114	50	200			
IS: Phenanthrene-d10	4.00		4.000		104	50	200			
Surr: 2-Fluorobiphenyl	0.725		1.000		72.5	46	115			
Surr: 4-Terphenyl-d14	0.833		1.000		83.3	58	133			

Sample ID **MB-76609** Batch ID: **76609** TestNo: **SW8270D-LL** Units: **mg/Kg-dry**
SampType: **MBLK** Run ID: **GCMS6_160809A** Analysis Date: **8/9/2016 10:15:00 AM** Prep Date: **8/2/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.00750	0.0100								U
Acenaphthylene	0.00750	0.0100								U
Anthracene	0.00750	0.0100								U
Benzo[a]anthracene	0.00750	0.0100								U
Benzo[a]pyrene	0.00750	0.0100								U
Benzo[b]fluoranthene	0.00750	0.0100								U
Benzo[e]pyrene	0.00750	0.0100								U
Benzo[g,h,i]perylene	0.00750	0.0100								U
Benzo[j]fluoranthene	0.00750	0.0100								NU
Benzo[k]fluoranthene	0.00750	0.0100								U

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1607317
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: GCMS6_160809A

Sample ID **MB-76609**	Batch ID: **76609**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **MBLK**	Run ID: **GCMS6_160809A**	Analysis Date: **8/9/2016 10:15:00 AM**	Prep Date: **8/2/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chrysene	0.00750	0.0100								U
Dibenz[a,h]anthracene	0.00750	0.0100								U
Fluoranthene	0.00750	0.0100								U
Fluorene	0.00750	0.0100								U
Indeno[1,2,3-cd]pyrene	0.00750	0.0100								U
Phenanthrene	0.00750	0.0100								U
Pyrene	0.00750	0.0100								U
IS: Acenaphthene-d10	4.00		4.000		137	50	200			
IS: Chrysene-d12	4.00		4.000		113	50	200			
IS: Naphthalene-d8	4.00		4.000		118	50	200			
IS: Perylene-d12	4.00		4.000		113	50	200			
IS: Phenanthrene-d10	4.00		4.000		105	50	200			
Surr: 2-Fluorobiphenyl	0.720		1.000		72.0	46	115			
Surr: 4-Terphenyl-d14	0.816		1.000		81.6	58	133			

Sample ID **SB-160809**	Batch ID: **76609**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **SBLK**	Run ID: **GCMS6_160809A**	Analysis Date: **8/9/2016 9:09:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.00750	0.0100	0							U
Acenaphthylene	0.00750	0.0100	0							U
Anthracene	0.00750	0.0100	0							U
Benzo[a]anthracene	0.00750	0.0100	0							U
Benzo[a]pyrene	0.00750	0.0100	0							U
Benzo[b]fluoranthene	0.00750	0.0100	0							U
Benzo[e]pyrene	0.00750	0.0100	0							U
Benzo[g,h,i]perylene	0.00750	0.0100	0							U
Benzo[j]fluoranthene	0.00750	0.0100	0							NU
Benzo[k]fluoranthene	0.00750	0.0100	0							U
Chrysene	0.00750	0.0100	0							U
Dibenz[a,h]anthracene	0.00750	0.0100	0							U
Fluoranthene	0.00750	0.0100	0							U
Fluorene	0.00750	0.0100	0							U
Indeno[1,2,3-cd]pyrene	0.00750	0.0100	0							U
Phenanthrene	0.00750	0.0100	0							U
Pyrene	0.00750	0.0100	0							U
IS: Acenaphthene-d10	4.00		0							
IS: Chrysene-d12	4.00		0							
IS: Naphthalene-d8	4.00		0							
IS: Perylene-d12	4.00		0							
IS: Phenanthrene-d10	4.00		0							

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1607317
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: GCMS6_160809A

Sample ID **SB-160809**	Batch ID: **76609**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **SBLK**	Run ID: **GCMS6_160809A**	Analysis Date: **8/9/2016 9:09:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 2-Fluorobiphenyl	0.0000800		0							
Surr: 4-Terphenyl-d14	0.0000700		0							

Sample ID **1607317-09AMS**	Batch ID: **76609**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **MS**	Run ID: **GCMS6_160809A**	Analysis Date: **8/10/2016 3:09:00 AM**	Prep Date: **8/2/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.768	0.0954	0.9542	0	80.5	44	111			
Acenaphthylene	0.714	0.0954	0.9542	0	74.8	39	116			
Anthracene	0.740	0.0954	0.9542	0	77.5	50	114			
Benzo[a]anthracene	0.947	0.0954	0.9542	0.1229	86.4	54	122			
Benzo[a]pyrene	1.03	0.0954	0.9542	0.1640	90.3	50	125			
Benzo[b]fluoranthene	1.07	0.0954	0.9542	0.1569	95.8	53	128			
Benzo[e]pyrene	1.01	0.0954	0.9542	0.1267	92.8	43	140			
Benzo[g,h,i]perylene	1.05	0.0954	0.9542	0.1440	95.2	49	127			
Benzo[j]fluoranthene	0.930	0.0954	0.9542	0.08023	89.1	45	125			N
Benzo[k]fluoranthene	0.905	0.0954	0.9542	0.07683	86.8	56	123			
Chrysene	0.999	0.0954	0.9542	0.1459	89.4	57	118			
Dibenz[a,h]anthracene	0.867	0.0954	0.9542	0	90.8	50	129			
Fluoranthene	1.06	0.0954	0.9542	0.2119	89.3	55	119			
Fluorene	0.762	0.0954	0.9542	0	79.8	47	114			
Indeno[1,2,3-cd]pyrene	1.02	0.0954	0.9542	0.1218	93.9	49	130			
Phenanthrene	0.881	0.0954	0.9542	0.1003	81.9	49	113			
Pyrene	1.04	0.0954	0.9542	0.1820	90.2	55	117			
IS: Acenaphthene-d10	38.2		3.817		130	50	200			
IS: Chrysene-d12	38.2		3.817		109	50	200			
IS: Naphthalene-d8	38.2		3.817		104	50	200			
IS: Perylene-d12	38.2		3.817		112	50	200			
IS: Phenanthrene-d10	38.2		3.817		93.1	50	200			
Surr: 2-Fluorobiphenyl	0.727		0.9542		76.2	46	115			
Surr: 4-Terphenyl-d14	0.814		0.9542		85.4	58	133			

Sample ID **1607317-09AMSD**	Batch ID: **76609**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **MSD**	Run ID: **GCMS6_160809A**	Analysis Date: **8/10/2016 3:50:00 AM**	Prep Date: **8/2/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.761	0.0973	0.9728	0	78.3	44	111	0.920	20	
Acenaphthylene	0.722	0.0973	0.9728	0	74.3	39	116	1.16	20	
Anthracene	0.722	0.0973	0.9728	0	74.2	50	114	2.44	20	
Benzo[a]anthracene	0.815	0.0973	0.9728	0.1229	71.1	54	122	15.0	20	
Benzo[a]pyrene	0.847	0.0973	0.9728	0.1640	70.2	50	125	19.1	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1607317
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: GCMS6_160809A

Sample ID **1607317-09AMSD**	Batch ID: **76609**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **MSD**	Run ID: **GCMS6_160809A**	Analysis Date: **8/10/2016 3:50:00 AM**	Prep Date: **8/2/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzo[b]fluoranthene	0.886	0.0973	0.9728	0.1569	74.9	53	128	18.9	20	
Benzo[e]pyrene	0.876	0.0973	0.9728	0.1267	77.0	43	140	14.5	20	
Benzo[g,h,i]perylene	0.935	0.0973	0.9728	0.1440	81.3	49	127	11.9	20	
Benzo[j]fluoranthene	0.840	0.0973	0.9728	0.08023	78.2	45	125	10.1	20	N
Benzo[k]fluoranthene	0.829	0.0973	0.9728	0.07683	77.3	56	123	8.87	20	
Chrysene	0.835	0.0973	0.9728	0.1459	70.8	57	118	18.0	20	
Dibenz[a,h]anthracene	0.836	0.0973	0.9728	0	86.0	50	129	3.58	20	
Fluoranthene	0.897	0.0973	0.9728	0.2119	70.5	55	119	17.0	20	
Fluorene	0.760	0.0973	0.9728	0	78.2	47	114	0.162	20	
Indeno[1,2,3-cd]pyrene	0.915	0.0973	0.9728	0.1218	81.5	49	130	10.7	20	
Phenanthrene	0.825	0.0973	0.9728	0.1003	74.5	49	113	6.67	20	
Pyrene	0.891	0.0973	0.9728	0.1820	72.9	55	117	15.6	20	
IS: Acenaphthene-d10	38.9		3.891		130	50	200	0	0	
IS: Chrysene-d12	38.9		3.891		112	50	200	0	0	
IS: Naphthalene-d8	38.9		3.891		103	50	200	0	0	
IS: Perylene-d12	38.9		3.891		114	50	200	0	0	
IS: Phenanthrene-d10	38.9		3.891		93.1	50	200	0	0	
Surr: 2-Fluorobiphenyl	0.736		0.9728		75.6	46	115	0	0	
Surr: 4-Terphenyl-d14	0.817		0.9728		84.0	58	133	0	0	

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1607317
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: GCMS6_160809A

Sample ID **ICV-160809**	Batch ID: **R87515**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **ICV**	Run ID: **GCMS6_160809A**	Analysis Date: **8/9/2016 8:54:00 AM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	1.88	0.0100	2.000	0	94.1	80	120			
Acenaphthylene	1.86	0.0100	2.000	0	92.9	80	120			
Anthracene	1.79	0.0100	2.000	0	89.5	80	120			
Benzo[a]anthracene	1.90	0.0100	2.000	0	95.2	80	120			
Benzo[a]pyrene	1.90	0.0100	2.000	0	94.8	80	120			
Benzo[b]fluoranthene	1.92	0.0100	2.000	0	95.8	80	120			
Benzo[e]pyrene	1.92	0.0100	2.000	0	96.2	80	120			
Benzo[g,h,i]perylene	2.06	0.0100	2.000	0	103	80	120			
Benzo[j]fluoranthene	1.96	0.0100	2.000	0	97.9	80	120			N
Benzo[k]fluoranthene	1.95	0.0100	2.000	0	97.6	80	120			
Chrysene	1.87	0.0100	2.000	0	93.3	80	120			
Dibenz[a,h]anthracene	2.07	0.0100	2.000	0	103	80	120			
Fluoranthene	1.72	0.0100	2.000	0	85.8	80	120			
Fluorene	1.90	0.0100	2.000	0	94.9	80	120			
Indeno[1,2,3-cd]pyrene	2.04	0.0100	2.000	0	102	80	120			
Phenanthrene	1.82	0.0100	2.000	0	90.8	80	120			
Pyrene	1.72	0.0100	2.000	0	85.9	80	120			
IS: Acenaphthene-d10	4.00		4.000		149	50	200			
IS: Chrysene-d12	4.00		4.000		124	50	200			
IS: Naphthalene-d8	4.00		4.000		113	50	200			
IS: Perylene-d12	4.00		4.000		130	50	200			
IS: Phenanthrene-d10	4.00		4.000		110	50	200			
Surr: 2-Fluorobiphenyl	1.76		2.000		88.1	65	120			
Surr: 4-Terphenyl-d14	1.83		2.000		91.7	65	120			

Sample ID **ICV2-160809**	Batch ID: **R87515**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **ICV**	Run ID: **GCMS6_160809A**	Analysis Date: **8/9/2016 7:49:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	1.90	0.0100	2.000	0	94.8	80	120			
Acenaphthylene	1.88	0.0100	2.000	0	93.8	80	120			
Anthracene	1.79	0.0100	2.000	0	89.7	80	120			
Benzo[a]anthracene	1.91	0.0100	2.000	0	95.6	80	120			
Benzo[a]pyrene	1.90	0.0100	2.000	0	95.1	80	120			
Benzo[b]fluoranthene	1.92	0.0100	2.000	0	95.9	80	120			
Benzo[e]pyrene	1.91	0.0100	2.000	0	95.6	80	120			
Benzo[g,h,i]perylene	2.02	0.0100	2.000	0	101	80	120			
Benzo[j]fluoranthene	1.97	0.0100	2.000	0	98.6	80	120			N
Benzo[k]fluoranthene	1.97	0.0100	2.000	0	98.3	80	120			
Chrysene	1.87	0.0100	2.000	0	93.6	80	120			
Dibenz[a,h]anthracene	2.05	0.0100	2.000	0	102	80	120			

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1607317
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: GCMS6_160809A

Sample ID **ICV2-160809**	Batch ID: **R87515**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **ICV**	Run ID: **GCMS6_160809A**	Analysis Date: **8/9/2016 7:49:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoranthene	1.76	0.0100	2.000	0	88.0	80	120			
Fluorene	1.90	0.0100	2.000	0	95.0	80	120			
Indeno[1,2,3-cd]pyrene	2.02	0.0100	2.000	0	101	80	120			
Phenanthrene	1.81	0.0100	2.000	0	90.7	80	120			
Pyrene	1.77	0.0100	2.000	0	88.3	80	120			
IS: Acenaphthene-d10	4.00		4.000		146	50	200			
IS: Chrysene-d12	4.00		4.000		122	50	200			
IS: Naphthalene-d8	4.00		4.000		113	50	200			
IS: Perylene-d12	4.00		4.000		127	50	200			
IS: Phenanthrene-d10	4.00		4.000		107	50	200			
Surr: 2-Fluorobiphenyl	1.79		2.000		89.5	65	120			
Surr: 4-Terphenyl-d14	1.89		2.000		94.3	65	120			

Sample ID **CCV1-160809**	Batch ID: **R87515**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **CCV**	Run ID: **GCMS6_160809A**	Analysis Date: **8/10/2016 4:30:00 AM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.952	0.0100	1.000	0	95.2	50	150			
Acenaphthylene	0.954	0.0100	1.000	0	95.4	50	150			
Anthracene	0.919	0.0100	1.000	0	91.9	50	150			
Benzo[a]anthracene	0.975	0.0100	1.000	0	97.5	50	150			
Benzo[a]pyrene	0.984	0.0100	1.000	0	98.4	50	150			
Benzo[b]fluoranthene	1.01	0.0100	1.000	0	101	50	150			
Benzo[e]pyrene	0.990	0.0100	1.000	0	99.0	50	150			
Benzo[g,h,i]perylene	1.03	0.0100	1.000	0	103	50	150			
Benzo[j]fluoranthene	1.02	0.0100	1.000	0	102	50	150			N
Benzo[k]fluoranthene	1.02	0.0100	1.000	0	102	50	150			
Chrysene	0.964	0.0100	1.000	0	96.4	50	150			
Dibenz[a,h]anthracene	1.05	0.0100	1.000	0	105	50	150			
Fluoranthene	0.932	0.0100	1.000	0	93.2	50	150			
Fluorene	0.948	0.0100	1.000	0	94.8	50	150			
Indeno[1,2,3-cd]pyrene	1.03	0.0100	1.000	0	103	50	150			
Phenanthrene	0.937	0.0100	1.000	0	93.7	50	150			
Pyrene	0.941	0.0100	1.000	0	94.1	50	150			
IS: Acenaphthene-d10	4.00		4.000		136	50	200			
IS: Chrysene-d12	4.00		4.000		116	50	200			
IS: Naphthalene-d8	4.00		4.000		104	50	200			
IS: Perylene-d12	4.00		4.000		118	50	200			
IS: Phenanthrene-d10	4.00		4.000		95.4	50	200			
Surr: 2-Fluorobiphenyl	0.889		1.000		88.9	50	150			
Surr: 4-Terphenyl-d14	0.961		1.000		96.1	50	150			

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1607317
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: GCMS8_160518A

Sample ID **DCS-75209**	Batch ID: **75209**	TestNo: **SW8270D-LL**	Units: **mg/L**
SampType: **DCS**	Run ID: **GCMS8_160518A**	Analysis Date: **5/18/2016 10:22:00 AM**	Prep Date: **5/17/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.0000307	0.0000500	0.0000400	0	76.8	20	170	0	0	
Acenaphthylene	0.0000308	0.0000500	0.0000400	0	77.0	20	170	0	0	
Anthracene	0.0000322	0.0000500	0.0000400	0	80.5	20	170	0	0	
Benzo[a]anthracene	0.0000306	0.0000500	0.0000400	0	76.4	20	170	0	0	
Benzo[a]pyrene	0.0000288	0.0000500	0.0000400	0	72.0	20	170	0	0	
Benzo[b]fluoranthene	0.0000304	0.0000500	0.0000400	0	76.0	20	170	0	0	
Benzo[e]pyrene	0.0000308	0.0000500	0.0000400	0	76.9	20	170	0	0	
Benzo[g,h,i]perylene	0.0000282	0.0000500	0.0000400	0	70.4	20	170	0	0	
Benzo[j]fluoranthene	0.0000254	0.0000500	0.0000400	0	63.6	20	170	0	0	N
Benzo[k]fluoranthene	0.0000283	0.0000500	0.0000400	0	70.8	20	170	0	0	
Chrysene	0.0000293	0.0000500	0.0000400	0	73.4	20	170	0	0	
Dibenz[a,h]anthracene	0.0000221	0.0000500	0.0000400	0	55.2	20	170	0	0	
Fluoranthene	0.0000331	0.0000500	0.0000400	0	82.7	20	170	0	0	
Fluorene	0.0000302	0.0000500	0.0000400	0	75.4	20	170	0	0	
Indeno[1,2,3-cd]pyrene	0.0000275	0.0000500	0.0000400	0	68.8	20	170	0	0	
Phenanthrene	0.0000339	0.0000500	0.0000400	0	84.6	20	170	0	0	
Pyrene	0.0000328	0.0000500	0.0000400	0	81.9	20	170	0	0	

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1607317
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: GCMS8_160803B

The QC data in batch 76564 applies to the following samples: 1607317-13B, 1607317-26B, 1607317-39B

Sample ID **LCS-76564** Batch ID: **76564** TestNo: **SW8270D-LL** Units: **mg/L**
SampType: **LCS** Run ID: **GCMS8_160803B** Analysis Date: **8/3/2016 9:49:00 AM** Prep Date: **7/29/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.00233	0.0000500	0.00400	0	58.2	48	114			
Acenaphthylene	0.00240	0.0000500	0.00400	0	59.9	35	121			
Anthracene	0.00241	0.0000500	0.00400	0	60.2	53	119			
Benzo[a]anthracene	0.00275	0.0000500	0.00400	0	68.9	59	120			
Benzo[a]pyrene	0.00278	0.0000500	0.00400	0	69.4	53	120			
Benzo[b]fluoranthene	0.00274	0.0000500	0.00400	0	68.4	53	126			
Benzo[e]pyrene	0.00273	0.0000500	0.00400	0	68.3	40	140			
Benzo[g,h,i]perylene	0.00273	0.0000500	0.00400	0	68.3	44	128			
Benzo[j]fluoranthene	0.00287	0.0000500	0.00400	0	71.7	45	124			N
Benzo[k]fluoranthene	0.00295	0.0000500	0.00400	0	73.8	54	125			
Chrysene	0.00264	0.0000500	0.00400	0	66.0	57	120			
Dibenz[a,h]anthracene	0.00280	0.0000500	0.00400	0	70.0	44	131			
Fluoranthene	0.00241	0.0000500	0.00400	0	60.4	58	120			
Fluorene	0.00257	0.0000500	0.00400	0	64.1	50	118			
Indeno[1,2,3-cd]pyrene	0.00284	0.0000500	0.00400	0	70.9	48	130			
Phenanthrene	0.00245	0.0000500	0.00400	0	61.3	53	115			
Pyrene	0.00237	0.0000500	0.00400	0	59.3	53	121			
IS: Acenaphthene-d10	0.00800		0.00800		98.9	50	200			
IS: Chrysene-d12	0.00800		0.00800		92.2	50	200			
IS: Naphthalene-d8	0.00800		0.00800		94.0	50	200			
IS: Perylene-d12	0.00800		0.00800		92.4	50	200			
IS: Phenanthrene-d10	0.00800		0.00800		103	50	200			
Surr: 2-Fluorobiphenyl	5.26		8.000		65.7	53	106			
Surr: 4-Terphenyl-d14	5.06		8.000		63.2	58	132			

Sample ID **MB-76564** Batch ID: **76564** TestNo: **SW8270D-LL** Units: **mg/L**
SampType: **MBLK** Run ID: **GCMS8_160803B** Analysis Date: **8/3/2016 11:08:00 AM** Prep Date: **7/29/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.0000400	0.0000500								U
Acenaphthylene	0.0000400	0.0000500								U
Anthracene	0.0000400	0.0000500								U
Benzo[a]anthracene	0.0000400	0.0000500								U
Benzo[a]pyrene	0.0000400	0.0000500								U
Benzo[b]fluoranthene	0.0000400	0.0000500								U
Benzo[e]pyrene	0.0000400	0.0000500								U
Benzo[g,h,i]perylene	0.0000400	0.0000500								U
Benzo[j]fluoranthene	0.0000400	0.0000500								NU
Benzo[k]fluoranthene	0.0000400	0.0000500								U
Chrysene	0.0000400	0.0000500								U

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1607317
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: GCMS8_160803B

Sample ID **MB-76564**	Batch ID: **76564**	TestNo: **SW8270D-LL**	Units: **mg/L**
SampType: **MBLK**	Run ID: **GCMS8_160803B**	Analysis Date: **8/3/2016 11:08:00 AM**	Prep Date: **7/29/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Dibenz[a,h]anthracene	0.0000400	0.0000500								U
Fluoranthene	0.0000400	0.0000500								U
Fluorene	0.0000400	0.0000500								U
Indeno[1,2,3-cd]pyrene	0.0000400	0.0000500								U
Phenanthrene	0.0000400	0.0000500								U
Pyrene	0.0000400	0.0000500								U
IS: Acenaphthene-d10	0.00800		0.00800		103	50	200			
IS: Chrysene-d12	0.00800		0.00800		91.9	50	200			
IS: Naphthalene-d8	0.00800		0.00800		94.6	50	200			
IS: Perylene-d12	0.00800		0.00800		92.8	50	200			
IS: Phenanthrene-d10	0.00800		0.00800		103	50	200			
Surr: 2-Fluorobiphenyl	5.72		8.000		71.6	53	106			
Surr: 4-Terphenyl-d14	5.05		8.000		63.1	58	132			

Sample ID **SBLK-160803**	Batch ID: **76564**	TestNo: **SW8270D-LL**	Units: **mg/L**
SampType: **SBLK**	Run ID: **GCMS8_160803B**	Analysis Date: **8/3/2016 9:47:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.0000400	0.0000500	0							U
Acenaphthylene	0.0000400	0.0000500	0							U
Anthracene	0.0000400	0.0000500	0							U
Benzo[a]anthracene	0.0000400	0.0000500	0							U
Benzo[a]pyrene	0.0000400	0.0000500	0							U
Benzo[b]fluoranthene	0.0000400	0.0000500	0							U
Benzo[e]pyrene	0.0000400	0.0000500	0							U
Benzo[g,h,i]perylene	0.0000400	0.0000500	0							U
Benzo[j]fluoranthene	0.0000400	0.0000500	0							NU
Benzo[k]fluoranthene	0.0000400	0.0000500	0							U
Chrysene	0.0000400	0.0000500	0							U
Dibenz[a,h]anthracene	0.0000400	0.0000500	0							U
Fluoranthene	0.0000400	0.0000500	0							U
Fluorene	0.0000400	0.0000500	0							U
Indeno[1,2,3-cd]pyrene	0.0000400	0.0000500	0							U
Phenanthrene	0.0000400	0.0000500	0							U
Pyrene	0.0000400	0.0000500	0							U
IS: Acenaphthene-d10	0.00800		0							
IS: Chrysene-d12	0.00800		0							
IS: Naphthalene-d8	0.00800		0							
IS: Perylene-d12	0.00800		0							
IS: Phenanthrene-d10	0.00800		0							

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1607317
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: GCMS8_160803B

Sample ID **ICV-160803**	Batch ID: **R87401**	TestNo: **SW8270D-LL**	Units: **mg/L**
SampType: **ICV**	Run ID: **GCMS8_160803B**	Analysis Date: **8/3/2016 9:09:00 AM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	1.98	0.0000500	2.00	0	98.9	80	120			
Acenaphthylene	2.01	0.0000500	2.00	0	100	80	120			
Anthracene	1.91	0.0000500	2.00	0	95.5	80	120			
Benzo[a]anthracene	2.07	0.0000500	2.00	0	103	80	120			
Benzo[a]pyrene	2.08	0.0000500	2.00	0	104	80	120			
Benzo[b]fluoranthene	2.10	0.0000500	2.00	0	105	80	120			
Benzo[e]pyrene	2.02	0.0000500	2.00	0	101	80	120			
Benzo[g,h,i]perylene	2.03	0.0000500	2.00	0	102	80	120			
Benzo[j]fluoranthene	2.10	0.0000500	2.00	0	105	80	120			N
Benzo[k]fluoranthene	2.16	0.0000500	2.00	0	108	80	120			
Chrysene	2.03	0.0000500	2.00	0	101	80	120			
Dibenz[a,h]anthracene	2.14	0.0000500	2.00	0	107	80	120			
Fluoranthene	1.94	0.0000500	2.00	0	97.0	80	120			
Fluorene	2.02	0.0000500	2.00	0	101	80	120			
Indeno[1,2,3-cd]pyrene	2.12	0.0000500	2.00	0	106	80	120			
Phenanthrene	1.90	0.0000500	2.00	0	95.0	80	120			
Pyrene	1.90	0.0000500	2.00	0	94.8	80	120			
IS: Acenaphthene-d10	4.00		4.00		100	50	200			
IS: Chrysene-d12	4.00		4.00		97.2	50	200			
IS: Naphthalene-d8	4.00		4.00		99.5	50	200			
IS: Perylene-d12	4.00		4.00		97.1	50	200			
IS: Phenanthrene-d10	4.00		4.00		102	50	200			
Surr: 2-Fluorobiphenyl	1930		2000		96.7	65	120			
Surr: 4-Terphenyl-d14	1910		2000		95.5	65	120			

Sample ID **ICV2-160803**	Batch ID: **R87401**	TestNo: **SW8270D-LL**	Units: **mg/L**
SampType: **ICV**	Run ID: **GCMS8_160803B**	Analysis Date: **8/3/2016 8:27:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	1.96	0.0000500	2.00	0	98.1	80	120			
Acenaphthylene	1.99	0.0000500	2.00	0	99.7	80	120			
Anthracene	1.87	0.0000500	2.00	0	93.3	80	120			
Benzo[a]anthracene	2.07	0.0000500	2.00	0	104	80	120			
Benzo[a]pyrene	2.07	0.0000500	2.00	0	104	80	120			
Benzo[b]fluoranthene	2.12	0.0000500	2.00	0	106	80	120			
Benzo[e]pyrene	2.02	0.0000500	2.00	0	101	80	120			
Benzo[g,h,i]perylene	2.10	0.0000500	2.00	0	105	80	120			
Benzo[j]fluoranthene	2.15	0.0000500	2.00	0	107	80	120			N
Benzo[k]fluoranthene	2.22	0.0000500	2.00	0	111	80	120			
Chrysene	2.01	0.0000500	2.00	0	101	80	120			
Dibenz[a,h]anthracene	2.19	0.0000500	2.00	0	110	80	120			

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1607317
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: GCMS8_160803B

Sample ID **ICV2-160803**	Batch ID: **R87401**	TestNo: **SW8270D-LL**	Units: **mg/L**
SampType: **ICV**	Run ID: **GCMS8_160803B**	Analysis Date: **8/3/2016 8:27:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoranthene	1.72	0.0000500	2.00	0	85.9	80	120			
Fluorene	2.20	0.0000500	2.00	0	110	80	120			
Indeno[1,2,3-cd]pyrene	2.17	0.0000500	2.00	0	109	80	120			
Phenanthrene	1.99	0.0000500	2.00	0	99.7	80	120			
Pyrene	1.67	0.0000500	2.00	0	83.5	80	120			
IS: Acenaphthene-d10	4.00		4.00		115	50	200			
IS: Chrysene-d12	4.00		4.00		97.7	50	200			
IS: Naphthalene-d8	4.00		4.00		98.7	50	200			
IS: Perylene-d12	4.00		4.00		97.0	50	200			
IS: Phenanthrene-d10	4.00		4.00		122	50	200			
Surr: 2-Fluorobiphenyl	2030		2000		102	65	120			
Surr: 4-Terphenyl-d14	1660		2000		82.8	65	120			

Sample ID **CCV-160803**	Batch ID: **R87401**	TestNo: **SW8270D-LL**	Units: **mg/L**
SampType: **CCV**	Run ID: **GCMS8_160803B**	Analysis Date: **8/4/2016 1:45:00 AM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.967	0.0000500	1.00	0	96.7	50	150			
Acenaphthylene	0.978	0.0000500	1.00	0	97.8	50	150			
Anthracene	0.951	0.0000500	1.00	0	95.1	50	150			
Benzo[a]anthracene	1.01	0.0000500	1.00	0	101	50	150			
Benzo[a]pyrene	1.02	0.0000500	1.00	0	102	50	150			
Benzo[b]fluoranthene	1.00	0.0000500	1.00	0	100	50	150			
Benzo[e]pyrene	0.975	0.0000500	1.00	0	97.5	50	150			
Benzo[g,h,i]perylene	1.05	0.0000500	1.00	0	105	50	150			
Benzo[j]fluoranthene	1.05	0.0000500	1.00	0	105	50	150			N
Benzo[k]fluoranthene	1.10	0.0000500	1.00	0	110	50	150			
Chrysene	0.996	0.0000500	1.00	0	99.6	50	150			
Dibenz[a,h]anthracene	1.09	0.0000500	1.00	0	109	50	150			
Fluoranthene	0.805	0.0000500	1.00	0	80.5	50	150			
Fluorene	1.10	0.0000500	1.00	0	110	50	150			
Indeno[1,2,3-cd]pyrene	1.08	0.0000500	1.00	0	108	50	150			
Phenanthrene	0.945	0.0000500	1.00	0	94.5	50	150			
Pyrene	0.778	0.0000500	1.00	0	77.8	50	150			
IS: Acenaphthene-d10	4.00		4.00		130	50	200			
IS: Chrysene-d12	4.00		4.00		99.8	50	200			
IS: Naphthalene-d8	4.00		4.00		104	50	200			
IS: Perylene-d12	4.00		4.00		102	50	200			
IS: Phenanthrene-d10	4.00		4.00		130	50	200			
Surr: 2-Fluorobiphenyl	1040		1000		104	50	150			
Surr: 4-Terphenyl-d14	769		1000		76.9	50	150			

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1607317
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: GCMS8_160803C

Sample ID **DCS-76288**	Batch ID: **76288**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **DCS**	Run ID: **GCMS8_160803C**	Analysis Date: **8/3/2016 11:47:00 AM**	Prep Date: **7/18/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.00792	0.0100	0.01000	0	79.2	20	200	0	0	
Acenaphthylene	0.00785	0.0100	0.01000	0	78.5	20	200	0	0	
Anthracene	0.00753	0.0100	0.01000	0	75.3	20	200	0	0	
Benzo[a]anthracene	0.00871	0.0100	0.01000	0	87.1	20	200	0	0	
Benzo[a]pyrene	0.00830	0.0100	0.01000	0	83.0	20	200	0	0	
Benzo[b]fluoranthene	0.00872	0.0100	0.01000	0	87.2	20	200	0	0	
Benzo[e]pyrene	0.00949	0.0100	0.01000	0	94.9	20	200	0	0	
Benzo[g,h,i]perylene	0.00902	0.0100	0.01000	0	90.2	20	200	0	0	
Benzo[j]fluoranthene	0.00913	0.0100	0.01000	0	91.3	20	200	0	0	N
Benzo[k]fluoranthene	0.00833	0.0100	0.01000	0	83.3	20	200	0	0	
Chrysene	0.00876	0.0100	0.01000	0	87.6	20	200	0	0	
Dibenz[a,h]anthracene	0.00901	0.0100	0.01000	0	90.1	20	200	0	0	
Fluoranthene	0.00814	0.0100	0.01000	0	81.4	20	200	0	0	
Fluorene	0.00767	0.0100	0.01000	0	76.7	20	200	0	0	
Indeno[1,2,3-cd]pyrene	0.00954	0.0100	0.01000	0	95.4	20	200	0	0	
Phenanthrene	0.0101	0.0100	0.01000	0	101	20	200	0	0	
Pyrene	0.00814	0.0100	0.01000	0	81.4	20	200	0	0	

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1607317
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: GCMS8_160809A

The QC data in batch 76617 applies to the following samples: 1607317-27A, 1607317-28A, 1607317-29A, 1607317-30A, 1607317-31A, 1607317-32A, 1607317-33A, 1607317-34A, 1607317-35A, 1607317-36A, 1607317-37A, 1607317-38A

Sample ID **LCS-76617** Batch ID: **76617** TestNo: **SW8270D-LL** Units: **mg/Kg-dry**
SampType: **LCS** Run ID: **GCMS8_160809A** Analysis Date: **8/9/2016 9:44:00 AM** Prep Date: **8/2/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.771	0.0100	1.000	0	77.1	44	111			
Acenaphthylene	0.799	0.0100	1.000	0	79.9	39	116			
Anthracene	0.749	0.0100	1.000	0	74.9	50	114			
Benzo[a]anthracene	0.807	0.0100	1.000	0	80.7	54	122			
Benzo[a]pyrene	0.800	0.0100	1.000	0	80.0	50	125			
Benzo[b]fluoranthene	0.801	0.0100	1.000	0	80.1	53	128			
Benzo[e]pyrene	0.817	0.0100	1.000	0	81.7	43	140			
Benzo[g,h,i]perylene	0.843	0.0100	1.000	0	84.3	49	127			
Benzo[j]fluoranthene	0.884	0.0100	1.000	0	88.4	45	125			N
Benzo[k]fluoranthene	0.885	0.0100	1.000	0	88.5	56	123			
Chrysene	0.801	0.0100	1.000	0	80.1	57	118			
Dibenz[a,h]anthracene	0.888	0.0100	1.000	0	88.8	50	129			
Fluoranthene	0.806	0.0100	1.000	0	80.6	55	119			
Fluorene	0.657	0.0100	1.000	0	65.7	47	114			
Indeno[1,2,3-cd]pyrene	0.884	0.0100	1.000	0	88.4	49	130			
Phenanthrene	0.797	0.0100	1.000	0	79.7	49	113			
Pyrene	0.813	0.0100	1.000	0	81.3	55	117			
IS: Acenaphthene-d10	4.00		4.000		110	50	200			
IS: Chrysene-d12	4.00		4.000		90.5	50	200			
IS: Naphthalene-d8	4.00		4.000		132	50	200			
IS: Perylene-d12	4.00		4.000		106	50	200			
IS: Phenanthrene-d10	4.00		4.000		79.3	50	200			
Surr: 2-Fluorobiphenyl	0.592		1.000		59.2	46	115			
Surr: 4-Terphenyl-d14	0.834		1.000		83.4	58	133			

Sample ID **MB-76617** Batch ID: **76617** TestNo: **SW8270D-LL** Units: **mg/Kg-dry**
SampType: **MBLK** Run ID: **GCMS8_160809A** Analysis Date: **8/9/2016 10:24:00 AM** Prep Date: **8/2/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.00750	0.0100								U
Acenaphthylene	0.00750	0.0100								U
Anthracene	0.00750	0.0100								U
Benzo[a]anthracene	0.00750	0.0100								U
Benzo[a]pyrene	0.00750	0.0100								U
Benzo[b]fluoranthene	0.00750	0.0100								U
Benzo[e]pyrene	0.00750	0.0100								U
Benzo[g,h,i]perylene	0.00750	0.0100								U
Benzo[j]fluoranthene	0.00750	0.0100								NU
Benzo[k]fluoranthene	0.00750	0.0100								U

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1607317
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: GCMS8_160809A

Sample ID **MB-76617**	Batch ID: **76617**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **MBLK**	Run ID: **GCMS8_160809A**	Analysis Date: **8/9/2016 10:24:00 AM**	Prep Date: **8/2/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chrysene	0.00750	0.0100								U
Dibenz[a,h]anthracene	0.00750	0.0100								U
Fluoranthene	0.00750	0.0100								U
Fluorene	0.00750	0.0100								U
Indeno[1,2,3-cd]pyrene	0.00750	0.0100								U
Phenanthrene	0.00750	0.0100								U
Pyrene	0.00750	0.0100								U
IS: Acenaphthene-d10	4.00		4.000		101	50	200			
IS: Chrysene-d12	4.00		4.000		91.5	50	200			
IS: Naphthalene-d8	4.00		4.000		130	50	200			
IS: Perylene-d12	4.00		4.000		102	50	200			
IS: Phenanthrene-d10	4.00		4.000		76.1	50	200			
Surr: 2-Fluorobiphenyl	0.568		1.000		56.8	46	115			
Surr: 4-Terphenyl-d14	0.933		1.000		93.3	58	133			

Sample ID **SB-160809**	Batch ID: **76617**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **SBLK**	Run ID: **GCMS8_160809A**	Analysis Date: **8/9/2016 9:05:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.00750	0.0100	0							U
Acenaphthylene	0.00750	0.0100	0							U
Anthracene	0.00750	0.0100	0							U
Benzo[a]anthracene	0.00750	0.0100	0							U
Benzo[a]pyrene	0.00750	0.0100	0							U
Benzo[b]fluoranthene	0.00750	0.0100	0							U
Benzo[e]pyrene	0.00750	0.0100	0							U
Benzo[g,h,i]perylene	0.00750	0.0100	0							U
Benzo[j]fluoranthene	0.00750	0.0100	0							NU
Benzo[k]fluoranthene	0.00750	0.0100	0							U
Chrysene	0.00750	0.0100	0							U
Dibenz[a,h]anthracene	0.00750	0.0100	0							U
Fluoranthene	0.00750	0.0100	0							U
Fluorene	0.00750	0.0100	0							U
Indeno[1,2,3-cd]pyrene	0.00750	0.0100	0							U
Phenanthrene	0.00750	0.0100	0							U
Pyrene	0.00750	0.0100	0							U
IS: Acenaphthene-d10	4.00		0							
IS: Chrysene-d12	4.00		0							
IS: Naphthalene-d8	4.00		0							
IS: Perylene-d12	4.00		0							
IS: Phenanthrene-d10	4.00		0							

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1607317
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: GCMS8_160809A

Sample ID **SB-160809**	Batch ID: **76617**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **SBLK**	Run ID: **GCMS8_160809A**	Analysis Date: **8/9/2016 9:05:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 2-Fluorobiphenyl	0.0000600		0							
Surr: 4-Terphenyl-d14	0.000250		0							

Sample ID **1607317-27AMS**	Batch ID: **76617**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **MS**	Run ID: **GCMS8_160809A**	Analysis Date: **8/10/2016 3:02:00 AM**	Prep Date: **8/2/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.793	0.0982	0.9823	0	80.7	44	111			
Acenaphthylene	0.810	0.0982	0.9823	0	82.5	39	116			
Anthracene	0.745	0.0982	0.9823	0	75.9	50	114			
Benzo[a]anthracene	0.800	0.0982	0.9823	0	81.4	54	122			
Benzo[a]pyrene	0.792	0.0982	0.9823	0.04951	75.6	50	125			
Benzo[b]fluoranthene	0.802	0.0982	0.9823	0	81.6	53	128			
Benzo[e]pyrene	0.821	0.0982	0.9823	0	83.6	43	140			
Benzo[g,h,i]perylene	0.817	0.0982	0.9823	0	83.1	49	127			
Benzo[j]fluoranthene	0.786	0.0982	0.9823	0	80.0	45	125			N
Benzo[k]fluoranthene	0.734	0.0982	0.9823	0	74.7	56	123			
Chrysene	0.811	0.0982	0.9823	0	82.6	57	118			
Dibenz[a,h]anthracene	0.729	0.0982	0.9823	0	74.2	50	129			
Fluoranthene	0.814	0.0982	0.9823	0.06816	76.0	55	119			
Fluorene	0.673	0.0982	0.9823	0	68.5	47	114			
Indeno[1,2,3-cd]pyrene	0.793	0.0982	0.9823	0	80.8	49	130			
Phenanthrene	0.842	0.0982	0.9823	0	85.7	49	113			
Pyrene	0.814	0.0982	0.9823	0.06282	76.5	55	117			
IS: Acenaphthene-d10	39.3		3.929		140	50	200			
IS: Chrysene-d12	39.3		3.929		91.9	50	200			
IS: Naphthalene-d8	39.3		3.929		115	50	200			
IS: Perylene-d12	39.3		3.929		99.7	50	200			
IS: Phenanthrene-d10	39.3		3.929		91.5	50	200			
Surr: 2-Fluorobiphenyl	0.872		0.9823		88.8	46	115			
Surr: 4-Terphenyl-d14	0.765		0.9823		77.8	58	133			

Sample ID **1607317-27AMSD**	Batch ID: **76617**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **MSD**	Run ID: **GCMS8_160809A**	Analysis Date: **8/10/2016 3:42:00 AM**	Prep Date: **8/2/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.788	0.0991	0.9911	0	79.5	44	111	0.622	20	
Acenaphthylene	0.808	0.0991	0.9911	0	81.5	39	116	0.283	20	
Anthracene	0.740	0.0991	0.9911	0	74.7	50	114	0.746	20	
Benzo[a]anthracene	0.791	0.0991	0.9911	0	79.8	54	122	1.13	20	
Benzo[a]pyrene	0.770	0.0991	0.9911	0.04951	72.7	50	125	2.90	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1607317
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: GCMS8_160809A

Sample ID **1607317-27AMSD**	Batch ID: **76617**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **MSD**	Run ID: **GCMS8_160809A**	Analysis Date: **8/10/2016 3:42:00 AM**	Prep Date: **8/2/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzo[b]fluoranthene	0.794	0.0991	0.9911	0	80.1	53	128	0.991	20	
Benzo[e]pyrene	0.806	0.0991	0.9911	0	81.3	43	140	1.93	20	
Benzo[g,h,i]perylene	0.806	0.0991	0.9911	0	81.3	49	127	1.31	20	
Benzo[j]fluoranthene	0.804	0.0991	0.9911	0	81.2	45	125	2.30	20	N
Benzo[k]fluoranthene	0.711	0.0991	0.9911	0	71.7	56	123	3.21	20	
Chrysene	0.788	0.0991	0.9911	0	79.6	57	118	2.85	20	
Dibenz[a,h]anthracene	0.737	0.0991	0.9911	0	74.3	50	129	0.996	20	
Fluoranthene	0.825	0.0991	0.9911	0.06816	76.3	55	119	1.27	20	
Fluorene	0.669	0.0991	0.9911	0	67.5	47	114	0.612	20	
Indeno[1,2,3-cd]pyrene	0.788	0.0991	0.9911	0	79.5	49	130	0.735	20	
Phenanthrene	0.845	0.0991	0.9911	0	85.2	49	113	0.361	20	
Pyrene	0.816	0.0991	0.9911	0.06282	76.0	55	117	0.186	20	
IS: Acenaphthene-d10	39.6		3.964		140	50	200	0	0	
IS: Chrysene-d12	39.6		3.964		97.3	50	200	0	0	
IS: Naphthalene-d8	39.6		3.964		122	50	200	0	0	
IS: Perylene-d12	39.6		3.964		105	50	200	0	0	
IS: Phenanthrene-d10	39.6		3.964		94.4	50	200	0	0	
Surr: 2-Fluorobiphenyl	0.806		0.9911		81.4	46	115	0	0	
Surr: 4-Terphenyl-d14	0.779		0.9911		78.6	58	133	0	0	

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1607317
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: GCMS8_160809A

Sample ID **ICV-160809**	Batch ID: **R87516**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **ICV**	Run ID: **GCMS8_160809A**	Analysis Date: **8/9/2016 9:04:00 AM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	1.96	0.0100	2.000	0	98.2	80	120			
Acenaphthylene	2.06	0.0100	2.000	0	103	80	120			
Anthracene	1.97	0.0100	2.000	0	98.6	80	120			
Benzo[a]anthracene	2.02	0.0100	2.000	0	101	80	120			
Benzo[a]pyrene	2.06	0.0100	2.000	0	103	80	120			
Benzo[b]fluoranthene	2.03	0.0100	2.000	0	101	80	120			
Benzo[e]pyrene	1.98	0.0100	2.000	0	98.9	80	120			
Benzo[g,h,i]perylene	2.03	0.0100	2.000	0	101	80	120			
Benzo[j]fluoranthene	2.17	0.0100	2.000	0	108	80	120			N
Benzo[k]fluoranthene	2.23	0.0100	2.000	0	111	80	120			
Chrysene	2.01	0.0100	2.000	0	100	80	120			
Dibenz[a,h]anthracene	2.17	0.0100	2.000	0	109	80	120			
Fluoranthene	1.87	0.0100	2.000	0	93.7	80	120			
Fluorene	1.74	0.0100	2.000	0	86.8	80	120			
Indeno[1,2,3-cd]pyrene	2.12	0.0100	2.000	0	106	80	120			
Phenanthrene	1.99	0.0100	2.000	0	99.7	80	120			
Pyrene	1.85	0.0100	2.000	0	92.7	80	120			
IS: Acenaphthene-d10	4.00		4.000		143	50	200			
IS: Chrysene-d12	4.00		4.000		100	50	200			
IS: Naphthalene-d8	4.00		4.000		117	50	200			
IS: Perylene-d12	4.00		4.000		111	50	200			
IS: Phenanthrene-d10	4.00		4.000		100	50	200			
Surr: 2-Fluorobiphenyl	2.02		2.000		101	65	120			
Surr: 4-Terphenyl-d14	1.89		2.000		94.4	65	120			

Sample ID **ICV2-160809**	Batch ID: **R87516**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **ICV**	Run ID: **GCMS8_160809A**	Analysis Date: **8/9/2016 7:46:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	1.98	0.0100	2.000	0	99.0	80	120			
Acenaphthylene	2.07	0.0100	2.000	0	103	80	120			
Anthracene	1.94	0.0100	2.000	0	97.2	80	120			
Benzo[a]anthracene	2.02	0.0100	2.000	0	101	80	120			
Benzo[a]pyrene	2.06	0.0100	2.000	0	103	80	120			
Benzo[b]fluoranthene	2.02	0.0100	2.000	0	101	80	120			
Benzo[e]pyrene	1.98	0.0100	2.000	0	99.0	80	120			
Benzo[g,h,i]perylene	2.01	0.0100	2.000	0	100	80	120			
Benzo[j]fluoranthene	2.15	0.0100	2.000	0	107	80	120			N
Benzo[k]fluoranthene	2.21	0.0100	2.000	0	111	80	120			
Chrysene	2.01	0.0100	2.000	0	100	80	120			
Dibenz[a,h]anthracene	2.14	0.0100	2.000	0	107	80	120			

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1607317
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: GCMS8_160809A

Sample ID **ICV2-160809**	Batch ID: **R87516**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **ICV**	Run ID: **GCMS8_160809A**	Analysis Date: **8/9/2016 7:46:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoranthene	1.88	0.0100	2.000	0	93.8	80	120			
Fluorene	1.74	0.0100	2.000	0	87.2	80	120			
Indeno[1,2,3-cd]pyrene	2.09	0.0100	2.000	0	104	80	120			
Phenanthrene	2.00	0.0100	2.000	0	99.8	80	120			
Pyrene	1.87	0.0100	2.000	0	93.5	80	120			
IS: Acenaphthene-d10	4.00		4.000		147	50	200			
IS: Chrysene-d12	4.00		4.000		105	50	200			
IS: Naphthalene-d8	4.00		4.000		124	50	200			
IS: Perylene-d12	4.00		4.000		116	50	200			
IS: Phenanthrene-d10	4.00		4.000		105	50	200			
Surr: 2-Fluorobiphenyl	2.01		2.000		101	65	120			
Surr: 4-Terphenyl-d14	1.91		2.000		95.5	65	120			

Sample ID **CCV1-160809**	Batch ID: **R87516**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **CCV**	Run ID: **GCMS8_160809A**	Analysis Date: **8/10/2016 4:21:00 AM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	1.00	0.0100	1.000	0	100	50	150			
Acenaphthylene	1.04	0.0100	1.000	0	104	50	150			
Anthracene	0.963	0.0100	1.000	0	96.3	50	150			
Benzo[a]anthracene	0.999	0.0100	1.000	0	99.9	50	150			
Benzo[a]pyrene	1.02	0.0100	1.000	0	102	50	150			
Benzo[b]fluoranthene	1.01	0.0100	1.000	0	101	50	150			
Benzo[e]pyrene	0.992	0.0100	1.000	0	99.2	50	150			
Benzo[g,h,i]perylene	1.01	0.0100	1.000	0	101	50	150			
Benzo[j]fluoranthene	1.08	0.0100	1.000	0	108	50	150			N
Benzo[k]fluoranthene	1.06	0.0100	1.000	0	106	50	150			
Chrysene	1.01	0.0100	1.000	0	101	50	150			
Dibenz[a,h]anthracene	1.06	0.0100	1.000	0	106	50	150			
Fluoranthene	0.938	0.0100	1.000	0	93.8	50	150			
Fluorene	0.854	0.0100	1.000	0	85.4	50	150			
Indeno[1,2,3-cd]pyrene	1.04	0.0100	1.000	0	104	50	150			
Phenanthrene	1.02	0.0100	1.000	0	102	50	150			
Pyrene	0.937	0.0100	1.000	0	93.7	50	150			
IS: Acenaphthene-d10	4.00		4.000		154	50	200			
IS: Chrysene-d12	4.00		4.000		102	50	200			
IS: Naphthalene-d8	4.00		4.000		128	50	200			
IS: Perylene-d12	4.00		4.000		111	50	200			
IS: Phenanthrene-d10	4.00		4.000		103	50	200			
Surr: 2-Fluorobiphenyl	1.01		1.000		101	50	150			
Surr: 4-Terphenyl-d14	0.926		1.000		92.6	50	150			

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1607317
Project: Laredo SGR

MQL SUMMARY REPORT

TestNo: SW6020A	MDL	MQL
Analyte	**mg/Kg-dry**	**mg/Kg-dry**
Lead	0.100	0.300

TestNo: SW6020A	MDL	MQL
Analyte	**mg/L**	**mg/L**
Lead	0.000300	0.00100

TestNo: SW8270D-LL	MDL	MQL
Analyte	**mg/Kg-dry**	**mg/Kg-dry**
Acenaphthene	0.00500	0.0100
Acenaphthylene	0.00500	0.0100
Anthracene	0.00500	0.0100
Benzo[a]anthracene	0.00500	0.0100
Benzo[a]pyrene	0.00500	0.0100
Benzo[b]fluoranthene	0.00500	0.0100
Benzo[e]pyrene	0.00500	0.0100
Benzo[g,h,i]perylene	0.00500	0.0100
Benzo[j]fluoranthene	0.00500	0.0100
Benzo[k]fluoranthene	0.00500	0.0100
Chrysene	0.00500	0.0100
Dibenz[a,h]anthracene	0.00500	0.0100
Fluoranthene	0.00500	0.0100
Fluorene	0.00500	0.0100
Indeno[1,2,3-cd]pyrene	0.00500	0.0100
Phenanthrene	0.00500	0.0100
Pyrene	0.00500	0.0100

TestNo: SW8270D-LL	MDL	MQL
Analyte	**mg/L**	**mg/L**
Acenaphthene	0.0000250	0.0000500
Acenaphthylene	0.0000250	0.0000500
Anthracene	0.0000250	0.0000500
Benzo[a]anthracene	0.0000250	0.0000500
Benzo[a]pyrene	0.0000250	0.0000500
Benzo[b]fluoranthene	0.0000250	0.0000500
Benzo[e]pyrene	0.0000250	0.0000500
Benzo[g,h,i]perylene	0.0000250	0.0000500
Benzo[j]fluoranthene	0.0000250	0.0000500
Benzo[k]fluoranthene	0.0000250	0.0000500
Chrysene	0.0000250	0.0000500
Dibenz[a,h]anthracene	0.0000250	0.0000500
Fluoranthene	0.0000250	0.0000500
Fluorene	0.0000250	0.0000500
Indeno[1,2,3-cd]pyrene	0.0000250	0.0000500
Phenanthrene	0.0000250	0.0000500
Pyrene	0.0000250	0.0000500

Qualifiers: MQL -Method Quantitation Limit as defined by TRRP
MDL -Method Detection Limit as defined by TRRP

GCMS6
For

DHL Work Order
1607317

GCMS6_160808A
For

DHL Work Order
1607317

Lab Data Review Check List
EPA Method 8270 / 625 - PAH: Polynuclear Aromatic Hydrocarbons

SEE RUN LOG FOR ALL PROJECT AND BATCH NUMBERS AND MATRICES	Run ID: GCMS6_160808A
Batch Number(s): See Run Log. Matrix: See Run Log.	SOP: ORGANICS-PAH-01

Review Item	Yes	No	N/A	2nd Level Review
Data Folder Contents 1. Is the Prep Batch Report included? Check and record the following: ***Prep Start/End Dates, Sample Amounts, Bottle #s***	X			x
2. Are the reagents and spikes listed on the Prep Batch Report current with a valid expiration date? ***All standard/QC sample preparations shall be documented in LIMS***	X			
3. Is the Run Log and instrument sequence included? ***Check the Test Code, Sample Type, Batch ID, and Analysis Date/Time***	X			
4. Is the System Verification - Tune Report included? ***Date/Tme of Tune starts 12-hour analysis window***	X			
5. Is the Evaluate Continuing Calibration Report included?	X			

Daily Demonstration of Performance

QC items that do not meet method/SOP/project requirements will be described on the run log. All variances that impact data quality will be described in the Variance/Comment Section on page 2.

Review Item	Frequency	Limits	Pass	Fail (List Batch/Sample) **See Run Log**	2nd Level Review
Tune	Before ICAL Every 12 hours	See Tune Eval Report	X		x
Resolution Check - Benzo(b) and Benzo(k)phenanthrene	Before ICAL Every 12 hours	Benzo(b) and Benzo(k) Valley > 50%	X		
Initial Calibration Curve (ICAL) (minimum: 5 Standards)	Prior to samples and when ICV fails	Avg. RF - %RSD ≤ 15% Curve (COD) - R^2 ≥ 0.990	X		
SSCV - (Second Source)	After calibration (ICAL)	80-120%	X		
ICV - (Daily Initial Cal Verification)	Every 12 hours	ISTDs Area% (50-200%) Surrogates %R (See LIMS) Analytes %R (80-120%)	X		

Review Item	Frequency	Limits	Pass	Fail	N/A	Review
Method Blank (MB) System Blank (SYS Blank)	Every Batch (MB) Daily (SYS BL)	< MDL / <½ RL (DoD) or <1/10 the sample/reg limit	X			x
Lab Control Sample (LCS)	Every Batch	See LIMS	X			
Lab Control Sample Dup (LCSD)	Insufficient sample Sample Matrix	See LIMS			X	
LCSD - RPD	Every LCS/LCSD	≤ 30 (Aq/Soil/DoD)			X	
Field Samples	Up to 20 per prep batch	ISTDs Area% (50-200%) Surrogates %R (See LIMS) RRT ± 0.06 RRT Standard Q value > 70 - check for #	X			
Matrix Spike (MS)	Every Batch/20 samples	See LIMS	X			
Matrix Spike Duplicate (MSD) (MSD is N/A for Method 625)	Every Prep Batch except Method 625	See LIMS	X			
MSD - RPD (MSD is N/A for Method 625)	Every MS/MSD except Method 625	≤ 30 (Aq/Soil/DoD)	X			

Lab Data Review Check List
EPA Method 8270 / 625 - PAH: Polynuclear Aromatic Hydrocarbons

Review Item	Criteria	Yes	No	N/A	2nd Level Review
Sample Analysis	7 days (Aq) - extraction			X	
1. Are all sample hold times met?	14 days (Soil) - extraction	X			
	40 days analysis	X			
2. Are all manual integrations signed (Before & After) and printouts included ? Put in LIMS Comment Section ***Include MI form for DoD work***	Before & After - signed Comment Section in LIMS MI Form - DoD only			X	x
3. Are all samples with concentrations > the highest standard used for calibration diluted and reanalyzed?	> highest standard			X	
Review Item #3 is N/A ONLY if all sample results are within Calibration range or NO if dilution is in different folder					
4. Is mass spectra reviewed/verified if Q value is <70 and/or # flag for results >MDL?	Q value <70 - All hits	X			x
5. Are ALL reported analytes > MDL (+ J flags) circled by the analyst?		X	**Return to analyst if NO**		
VARIANCE REPORT					
QC items that do not meet method/SOP/project requirements will be described on the run log. All variances that impact data quality will be described in this section.					
NON-CONFORMANCES / VARIANCE	All deviations from the method and SOP that affect data quality			X	x
1. Are all non-conformances included and noted?					
2. Are all corrective actions included?				X	
3. Does the variance require approval by the Technical Director/General Manager/QA Manager?				X	

Approved by: Date:

Description and Corrective Actions of QC items that do not meet method/SOP/project requirements:

****INCLUDE VARIANCE ITEM / REASON / CORRECTIVE ACTION / IMPACT ON DATA****

VARIANCE ITEM	REASON	CORRECTIVE ACTION
___ Hold Time exceeded (7D/14D-Ext/40D-Analysis)	___ Sample Received out of HT	___ Reanalyze QC to confirm
___ ICV out of control (±20%)	___ Carryover from previous run	___ Recalibrate
___ MB/SYS BL out of control (> MDL / >½ RL)	___ Cross contamination	___ Reprep/Reanalyze sample
___ LCS ___LCSD out of control (See LIMS)	___ Lab Artifact	___ Reprep/Reanalyze Batch
___ RPD out of control for LCS/LCSD (>30)	___ Prep Spike error (describe)	___ Reanalyze Batch/Sample/QC
___ MS ___ MSD out of control (See LIMS)	___ High Levels of target analytes	___ Verify H2O/reagents are clean
___ RPD out of control for MS/MSD (>30)	___ High Levels of non-targets	___ Reanalyze sample to confirm
___ Internal Standard(s) out of control	___ Insufficient sample for QC	___ Sample results ND w/ dilution
___ Multiple Surrogates out of control	___ Prep Error	___ Client notified and approved
___ No MS/MSD prepared - LCS/LCSD used instead	___ Analytical Error	___ Flag data / Case narrative
___ Missing QC (other than MS/MSD)	___ Client Request	___ Instrument Maintenance
___ QC sample(s) was mis-spiked	___ Other (describe below)	___ Accept data
___ Other (describe below)		___ Cannot reanalyze (HT out/Lack of Sample)

General Comments and Impact on Data: **See Run Log.**

Analyst: Don Winston Date: 8/9/2016

Second-Level Review: Janice Whitt Date: 8/15/2016

REVIEWED BY
By Janice Whitt at 4:46:18 PM, 8/15/2016

DHL Analytical, Inc.

Run ID: GCMS6_160808A **Run No.:** 87483

Analytical Run Date: 8/8/2016 **InstrumentID:** GCMS6

Analyst: Don Winston **Column:** Agilent (J&W) DB-EUPAH (20m x 0.18mmI

Calibration ID: 680 **Column ID:** 0.18mm

Column Length: 20m

Cal Comments: PP160801.M

SampID	DF	TestCode	SampType	Batch ID	Analysis Date/Time	Q	Comments
DFTPP-160808	1	PAH_LL_SDOD1	TUNE	R87483	8/8/2016 10:10:00 AM		All samples in this batch run at 10x - detection limit is sufficient and is approved by project managers.
ICV-160808	1	PAH_LL_SDOD1	ICV	R87483	8/8/2016 10:50:00 AM		
LCS-76583	1	PAH_LL_SDOD1	LCS	76583	8/8/2016 11:30:00 AM		
MB-76583	1	PAH_LL_SDOD1	MBLK	76583	8/8/2016 12:10:00 PM		
1607294-66A	10	PAH_LL_SDOD1	SAMP	76583	8/8/2016 12:50:00 PM		
1607294-67A	10	PAH_LL_SDOD1	SAMP	76583	8/8/2016 1:30:00 PM		
1607294-68A	10	PAH_LL_SDOD1	SAMP	76583	8/8/2016 2:12:00 PM		
1607294-69A	10	PAH_LL_SDOD1	SAMP	76583	8/8/2016 2:52:00 PM		
1607294-70A	10	PAH_LL_SDOD1	SAMP	76583	8/8/2016 3:34:00 PM		
1607294-71A	10	PAH_LL_SDOD1	SAMP	76583	8/8/2016 4:16:00 PM		
1607294-72A	10	PAH_LL_SDOD1	SAMP	76583	8/8/2016 4:56:00 PM		
1607294-73A	10	PAH_LL_SDOD1	SAMP	76583	8/8/2016 5:38:00 PM		
1607294-74A	10	PAH_LL_SDOD1	SAMP	76583	8/8/2016 6:17:00 PM		
1607294-75A	10	PAH_LL_SDOD1	SAMP	76583	8/8/2016 6:58:00 PM		
1607314-01A	10	PAH_LL_SDOD1	SAMP	76583	8/8/2016 7:38:00 PM		
1607314-02A	10	PAH_LL_SDOD1	SAMP	76583	8/8/2016 8:18:00 PM		
1607314-03A	10	PAH_LL_SDOD1	SAMP	76583	8/8/2016 8:58:00 PM		
DFTPP2-160808	1	PAH_LL_SDOD1	TUNE	R87483	8/8/2016 9:39:00 PM		
ICV2-160808	1	PAH_LL_SDOD1	ICV	R87483	8/8/2016 10:19:00 PM		
SB-160808	1	PAH_LL_SDOD1	SBLK	76583	8/8/2016 11:41:00 PM		
1607314-04A	10	PAH_LL_SDOD1	SAMP	76583	8/9/2016 12:21:00 AM		
1607314-05A	10	PAH_LL_SDOD1	SAMP	76583	8/9/2016 1:02:00 AM		
1607314-06A	10	PAH_LL_SDOD1	SAMP	76583	8/9/2016 1:43:00 AM		
1607317-01A	10	PAH_LL_SDOD1	SAMP	76583	8/9/2016 2:23:00 AM		
1607317-02A	10	PAH_LL_SDOD1	SAMP	76583	8/9/2016 3:03:00 AM		
1607317-03A	10	PAH_LL_SDOD1	SAMP	76583	8/9/2016 3:43:00 AM		
1607317-04A	10	PAH_LL_SDOD1	SAMP	76583	8/9/2016 4:24:00 AM		
1607314-03AMS	10	PAH_LL_SDOD1	MS	76583	8/9/2016 5:05:00 AM		

Std ID	Std Name	Type	Exp. Date
DFTPP160509	2.5 PPM 525 TUNE STD.	TUNE	05/07/2017
PAHCCV160806	1 PPM PAH CCV STANDARD	CCV	11/04/2016
PAHICV160806	2 PPM PAH ICV	ICV	11/04/2016
SVI160510-3	4000 PPM INTERNAL STANDAR	ALL	07/30/2017

DHL Analytical, Inc.

Run ID: GCMS6_160808A **Run No.:** 87483

1607314-03AMSD	10	PAH_LL_SDOD1	MSD	76583	8/9/2016 5:45:00 AM		
CCV1-160808	1	PAH_LL_SDOD1	CCV	R87483	8/9/2016 6:25:00 AM		

Std ID	Std Name	Type	Exp. Date
DFTPP160509	2.5 PPM 525 TUNE STD.	TUNE	05/07/2017
PAHCCV160806	1 PPM PAH CCV STANDARD	CCV	11/04/2016
PAHICV160806	2 PPM PAH ICV	ICV	11/04/2016
SVI160510-3	4000 PPM INTERNAL STANDAR	ALL	07/30/2017

Sequence Name: C:\HPCHEM\1\SEQUENCE\160808.S
Comment:
Operator: DEW
Data Path: C:\HPCHEM\1\DATA\160808\
Pre-Seq Cmd:
Post-Seq Cmd:

Method Sections To Run
(X) Full Method
( ) Reprocessing Only

On A Barcode Mismatch
(X) Inject Anyway
( ) Don't Inject

Line	Type	Vial	DataFile	Method	Sample Name
1	Sample	1	16080801	DFTPPPAH	DFTPP-160808
2	Sample	2	16080802	PP160801	ICV-160808
3	Sample	3	16080803	PP160801	LCS-76583
4	Sample	4	16080804	PP160801	MB-76583
5	Sample	5	16080805	PP160801	1607294-66A
6	Sample	6	16080806	PP160801	1607294-67A
7	Sample	7	16080807	PP160801	1607294-68A
8	Sample	8	16080808	PP160801	1607294-69A
9	Sample	9	16080809	PP160801	1607294-70A
10	Sample	10	16080810	PP160801	1607294-71A
11	Sample	11	16080811	PP160801	1607294-72A
12	Sample	12	16080812	PP160801	1607294-73A
13	Sample	13	16080813	PP160801	1607294-74A
14	Sample	14	16080814	PP160801	1607294-75A
15	Sample	15	16080815	PP160801	1607314-01A
16	Sample	16	16080816	PP160801	1607314-02A
17	Sample	17	16080817	PP160801	1607314-03A
18	Sample	18	16080818	DFTPPPAH	DFTPP2-160808
19	Sample	19	16080819	PP160801	ICV2-160808
20	Sample	20	16080820	PP160801	SBLK
21	Sample	21	16080821	PP160801	SB-160808
22	Sample	22	16080822	PP160801	1607314-04A
23	Sample	23	16080823	PP160801	1607314-05A
24	Sample	24	16080824	PP160801	1607314-06A
25	Sample	25	16080825	PP160801	1607317-01A
26	Sample	26	16080826	PP160801	1607317-02A
27	Sample	27	16080827	PP160801	1607317-03A
28	Sample	28	16080828	PP160801	1607317-04A
29	Sample	29	16080829	PP160801	1607314-03AMS
30	Sample	30	16080830	PP160801	1607314-03AMSD
31	Sample	31	16080831	PP160801	CCV1-160808

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **8/1/2016 9:55:54 AM**
Digestion:
Prep End Date: **8/1/2016 5:00:00 PM**

Prep Batch **76583** Prep Code: **3550_PAHDOD** Technician: **Lauren Garcia**

Prep Factor Units: **mL/g**

Equipment List
Turbo-Vap # 1,2,3
Balance # 25
Sonicators # 1,2,3,4

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607294-66A	Soil		10.2	10	0.980	1 of 1	
1607294-67A	Soil		10.32	10	0.969	1 of 1	
1607294-68A	Soil		10.05	10	0.995	1 of 1	
1607294-69A	Soil		10.01	10	0.999	1 of 1	
1607294-70A	Soil		10.16	10	0.984	1 of 1	
1607294-71A	Soil		10.12	10	0.988	1 of 1	
1607294-72A	Soil		10.22	10	0.978	1 of 1	
1607294-73A	Soil		10.32	10	0.969	1 of 1	
1607294-74A	Soil		10.38	10	0.963	1 of 1	
1607294-75A	Soil		10.94	10	0.914	1 of 1	
1607314-01A	Soil		10.08	10	0.992	1 of 1	
1607314-02A	Soil		10.29	10	0.972	1 of 1	
1607314-03A	Soil		10.06	10	0.994	1 of 3	
1607314-03AMS	Soil		10.25	10	0.976	1 of	
1607314-03AMSD	Soil		10.01	10	0.999	1 of	
1607314-04A	Soil		10.08	10	0.992	1 of 1	
1607314-05A	Soil		10.09	10	0.991	1 of 1	
1607314-06A	Soil		10.18	10	0.982	1 of 1	
1607317-01A	Soil		10.15	10	0.985	1 of 1	
1607317-02A	Soil		10.17	10	0.983	1 of 1	
1607317-03A	Soil		~~10.51~~ 10.28	10	0.951	1 of 1	jw 8/15/2016
1607317-04A	Soil		~~10.28~~ 10.51	10	0.973	1 of 1	jw 8/15/2016
LCS-76583	Soil		10	10	1.000	of	
MB-76583	Soil		10	10	1.000	of	

Number	Reagent Name	Amt	Units	Exp. Da
10394	Purified Sodium Sulfate	10	g	05/23/2026
10419	Methylene Chloride	8	ml	05/31/2026
10535	Whatman 41 Filter	1	filter	07/08/2026
10591	1:1 MeCl2/Acetone	120	ml	07/26/2026

Spk ID	Spike Name	SampType	Amt (mL or g)	Exp. Date
PAHPREP160727	200 PPM PAH Spike Mix	LCS/MS/MSD	0.05	10/25/2016
SVPREP160727	40 PPM Surrogate Standard	ALL	0.25	10/25/2016

REVIEWED BY
By Janice Whitt at 4:05:20 PM, 8/15/2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **8/1/2016 9:55:54 AM**
Digestion:
Prep End Date: 8/1/2016 5:00PM

Prep Batch **76583** Prep Code: **3550_PAHDOD** Technician: **ADMIN**

Prep Factor Units: **mL/g**

Equipment List
Turbo-Vap # 1,2,3
Balance # 25
Sonicators # 1,2,3,4

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607294-66A	Soil		10.20	10	1.000	1 of 1	
1607294-67A	Soil		10.32	10	1.000	1 of 1	
1607294-68A	Soil		10.05	10	1.000	1 of 1	
1607294-69A	Soil		10.01	10	1.000	1 of 1	
1607294-70A	Soil		10.16	10	1.000	1 of 1	
1607294-71A	Soil		10.17	10	1.000	1 of 1	
1607294-72A	Soil		10.22	10	1.000	1 of 1	
1607294-73A	Soil		10.37	10	1.000	1 of 1	
1607294-74A	Soil		10.38	10	1.000	1 of 1	
1607294-75A	Soil		10.94	10	1.000	1 of 1	
1607314-01A	Soil		10.08	10	1.000	1 of 1	
1607314-02A	Soil		10.29	10	1.000	1 of 1	
1607314-03A	Soil		10.06	10	1.000	1 of 3	
1607314-03AMS	Soil		10.25	10	1.000	1 of	↓
1607314-03AMSD	Soil		10.01	10	1.000	1 of	↓
1607314-04A	Soil		10.08	10	1.000	1 of 1	
1607314-05A	Soil		10.09	10	1.000	1 of 1	
1607314-06A	Soil		10.18	10	1.000	1 of 1	
1607317-01A	Soil		10.15	10	1.000	1 of 1	
1607317-02A	Soil		10.17	10	1.000	1 of 1	
1607317-03A	Soil		10.29	10	1.000	1 of 1	
1607317-04A	Soil		10.51	10	1.000	1 of 1	
LCS-76583	Soil		10	10	1.000	of	
MB-76583	Soil		10	10	1.000	of	

Number	Reagent Name	Amt	Units	Exp. Da
10394	Purified Sodium Sulfate	10	g	05/23/2026
10419	Methylene Chloride	8	ml	05/31/2026
10535	Whatman 41 Filter	1	filter	07/08/2026
10591	1:1 MeCl2/Acetone	120	ml	07/26/2026

Spk ID	Spike Name	SampType	Amt (mL or g)	Exp. Date
PAHPREP160727	200 PPM PAH Spike Mix	LCS/MS/MSD	0.05	10/25/2016
SVPREP160727	40 PPM Surrogate Standard	ALL	0.25	10/25/2016

REVIEWED BY
By Janice Whitt at 4:05:18 PM, 8/15/2016

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8/1/16

8/1/16

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **7/26/2016 5:30:00 PM**
Digestion: **Start: 7/26/2016 6:40:00 PM / Stop: 7/29/2016 1:40:00 PM**
Prep End Date: **7/29/2016 3:00:00 PM**

Prep Batch **76518** Prep Code: **ISM2MM_PREP** Technician: **Jennifer Barker**

Prep Factor Units: **mL/**

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607294-66A	Soil		0	0	#Num!	1 of 1	
	Sieve only hard clay						
1607294-67A	Soil		0	0	#Num!	1 of 1	
	Sieve only hard clay						
1607294-68A	Soil		0	0	#Num!	1 of 1	
	SS						
1607294-69A	Soil		0	0	#Num!	1 of 1	
	SS						
1607294-70A	Soil		0	0	#Num!	1 of 1	
	Sieve only hard clay						
1607294-71A	Soil		0	0	#Num!	1 of 1	
	Sieve only hard clay						
1607294-72A	Soil		0	0	#Num!	1 of 1	
	SS						
1607294-73A	Soil		0	0	#Num!	1 of 1	
	SS						
1607294-74A	Soil		0	0	#Num!	1 of 1	
	SS						
1607294-75A	Soil		0	0	#Num!	1 of 1	
	Sieve only hard clay						

REVIEWED BY
By Janice Whitt at 4:05:57 PM, 8/15/2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **7/28/2016 12:00:00 PM**
Digestion: **Start: 7/28/2016 12:10:00 PM / Stop: 7/29/2016 1:30:00 PM**
Prep End Date: **7/29/2016 3:00:00 PM**

Prep Batch **76539** Prep Code: **ISM2MM_PREP** Technician: **Jennifer Barker**

Prep Factor Units: **mL/**

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607314-01A	Soil		0	0	#Num!	1 of 1	
SS							
1607314-02A	Soil		0	0	#Num!	1 of 1	
SS							
1607314-03A	Soil		0	0	#Num!	of 3	
SS MS/MSD							
1607314-04A	Soil		0	0	#Num!	1 of 1	
SS							
1607314-05A	Soil		0	0	#Num!	1 of 1	
SS							
1607314-06A	Soil		0	0	#Num!	1 of 1	
SS							

REVIEWED BY
By Janice Whitt at 4:06:00 PM, 8/15/2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **7/28/2016 4:31:01 PM**
Digestion: **Start: 7/28/2016 4:45:00 PM / Stop: 8/1/2016 10:00:00 AM**
Prep End Date: **8/2/2016 10:00:00 AM**

Prep Batch **76551** Prep Code: **ISM2MM_PREP** Technician: **Jennifer Barker**

Prep Factor Units: **mL/**

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607317-01A	Soil		0	0	#Num!	1 of 1	
SS							
1607317-02A	Soil		0	0	#Num!	1 of 1	
SS							
1607317-03A	Soil		0	0	#Num!	1 of 1	
Sieve only hard clay							
1607317-04A	Soil		0	0	#Num!	1 of 1	
Sieve only hard clay							
1607317-05A	Soil		0	0	#Num!	1 of 1	
SS							
1607317-06A	Soil		0	0	#Num!	1 of 1	
SS							
1607317-07A	Soil		0	0	#Num!	1 of 1	
Sieve only hard clay							
1607317-08A	Soil		0	0	#Num!	1 of 1	
Sieve only hard clay							
1607317-09A	Soil		0	0	#Num!	of 3	
SS MS/MSD							
1607317-10A	Soil		0	0	#Num!	1 of 1	
SS							
1607317-11A	Soil		0	0	#Num!	1 of 1	
Sieve only hard clay							
1607317-12A	Soil		0	0	#Num!	1 of 1	
Sieve only hard clay							
1607317-14A	Soil		0	0	#Num!	1 of 1	
SS							

REVIEWED BY
By Janice Whitt at 4:06:04 PM, 8/15/2016

Prep Start Date: **7/28/2016 4:31:01 PM**
Digestion: **Start: 7/28/2016 4:45:00 PM / Stop: 8/1/2016 10:00:00 AM**
Prep End Date: **8/2/2016 10:00:00 AM**

Prep Batch **76551** Prep Code: **ISM2MM_PREP** Technician: **Jennifer Barker**

Prep Factor Units: **mL/**

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607317-15A SS	Soil		0	0	#Num!	1 of 1	
1607317-16A SS	Soil		0	0	#Num!	1 of 1	
1607317-17A SS	Soil		0	0	#Num!	1 of 1	
1607317-18A SS	Soil		0	0	#Num!	1 of 1	
1607317-19A SS	Soil		0	0	#Num!	1 of 1	
1607317-20A SS	Soil		0	0	#Num!	1 of 1	
1607317-21A SS	Soil		0	0	#Num!	1 of 1	
1607317-22A SS	Soil		0	0	#Num!	1 of 1	
1607317-23A SS	Soil		0	0	#Num!	1 of 1	
1607317-24A SS	Soil		0	0	#Num!	1 of 1	
1607317-25A SS	Soil		0	0	#Num!	1 of 1	
1607317-27A SS MS/MSD	Soil		0	0	#Num!	of 3	
1607317-28A SS	Soil		0	0	#Num!	1 of 1	

REVIEWED BY
By Janice Whitt at 4:06:10 PM, 8/15/2016

Prep Start Date: **7/28/2016 4:31:01 PM**
Digestion: **Start: 7/28/2016 4:45:00 PM / Stop: 8/1/2016 10:00:00 AM**
Prep End Date: **8/2/2016 10:00:00 AM**

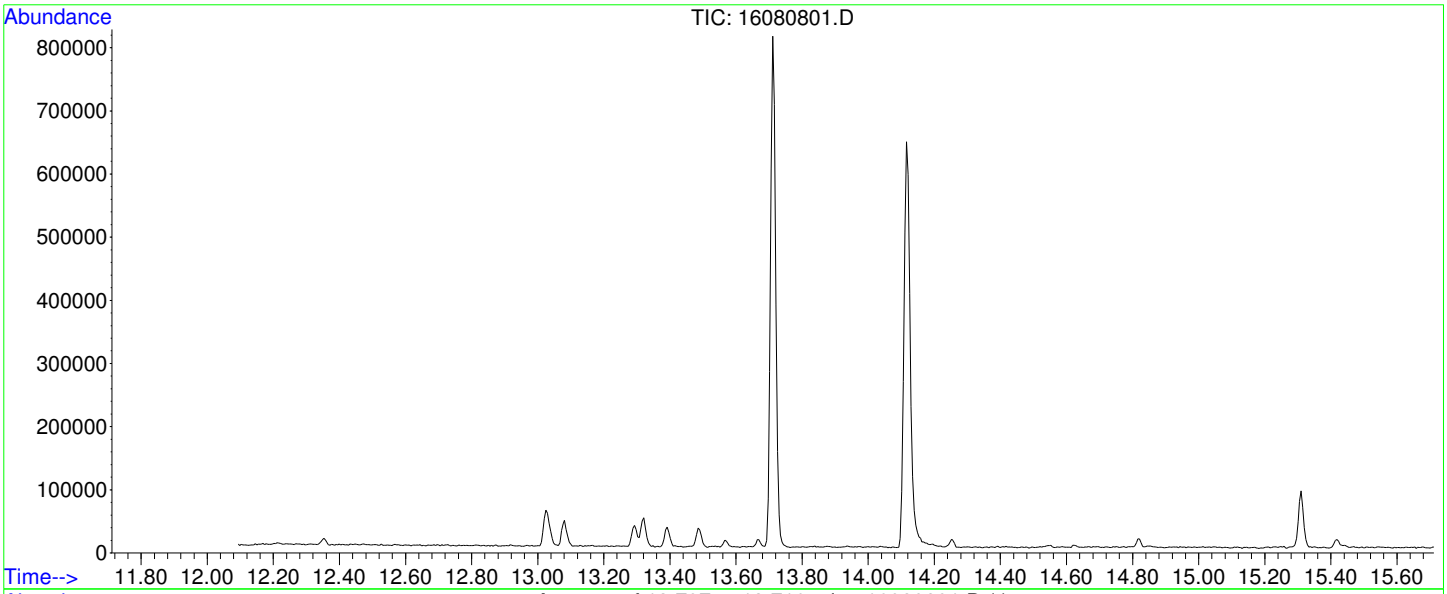
Prep Batch **76551** Prep Code: **ISM2MM_PREP** Technician: **Jennifer Barker**

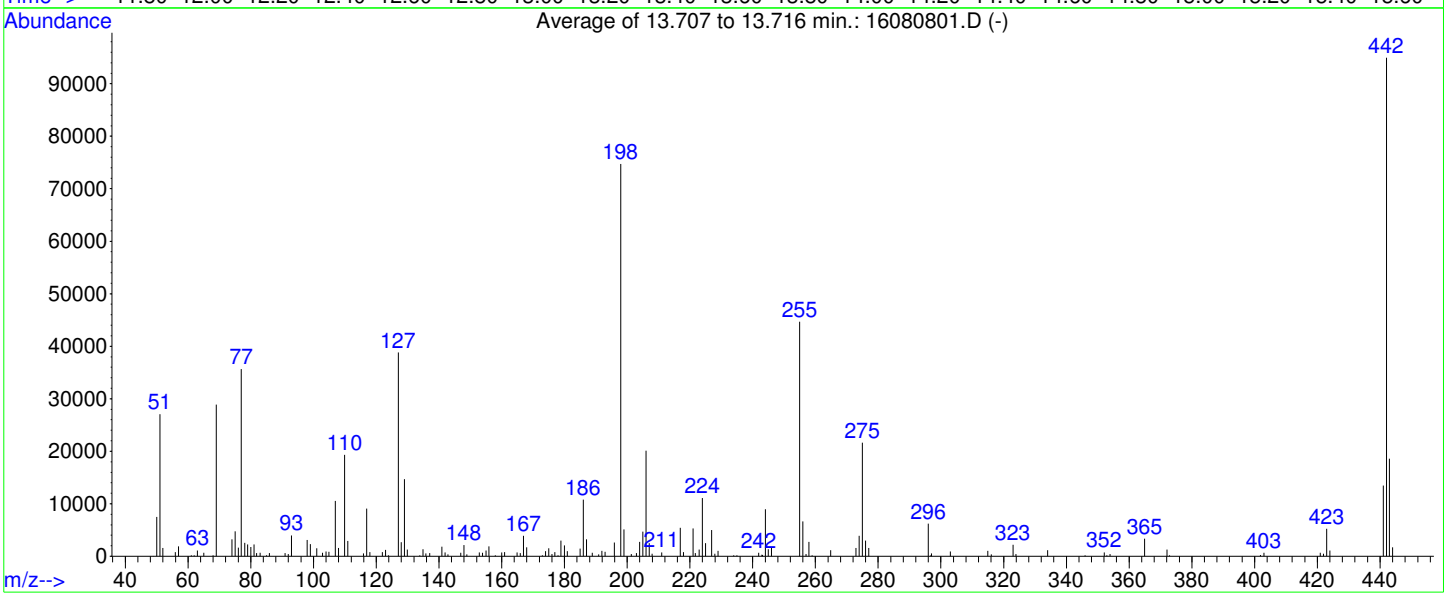
Prep Factor Units: **mL/**

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607317-29A	Soil		0	0	#Num!	1 of 1	
SS							
1607317-30A	Soil		0	0	#Num!	1 of 1	
Sieve only hard clay							
1607317-31A	Soil		0	0	#Num!	1 of 1	
SS							
1607317-32A	Soil		0	0	#Num!	1 of 1	
SS							
1607317-33A	Soil		0	0	#Num!	1 of 1	
SS							
1607317-34A	Soil		0	0	#Num!	1 of 1	
Sieve only hard clay							
1607317-35A	Soil		0	0	#Num!	1 of 1	
SS							
1607317-36A	Soil		0	0	#Num!	1 of 1	
SS							
1607317-37A	Soil		0	0	#Num!	1 of 1	
SS							
1607317-38A	Soil		0	0	#Num!	1 of 1	
Sieve only hard clay							

REVIEWED BY
By Janice Whitt at 4:06:13 PM, 8/15/2016

Data File : C:\HPCHEM\1\DATA\160808\16080801.D Vial: 1
Acq On : 8 Aug 2016 10:10 am Operator: DEW
Sample : DFTPP-160808 Inst : GC/MS #6
Misc : TUNE Multiplr: 1.00
MS Integration Params: RTEINT.P
Method : C:\HPCHEM\1\METHODS\DFTPPPAH.M (RTE Integrator)
Title : PAH Calibration



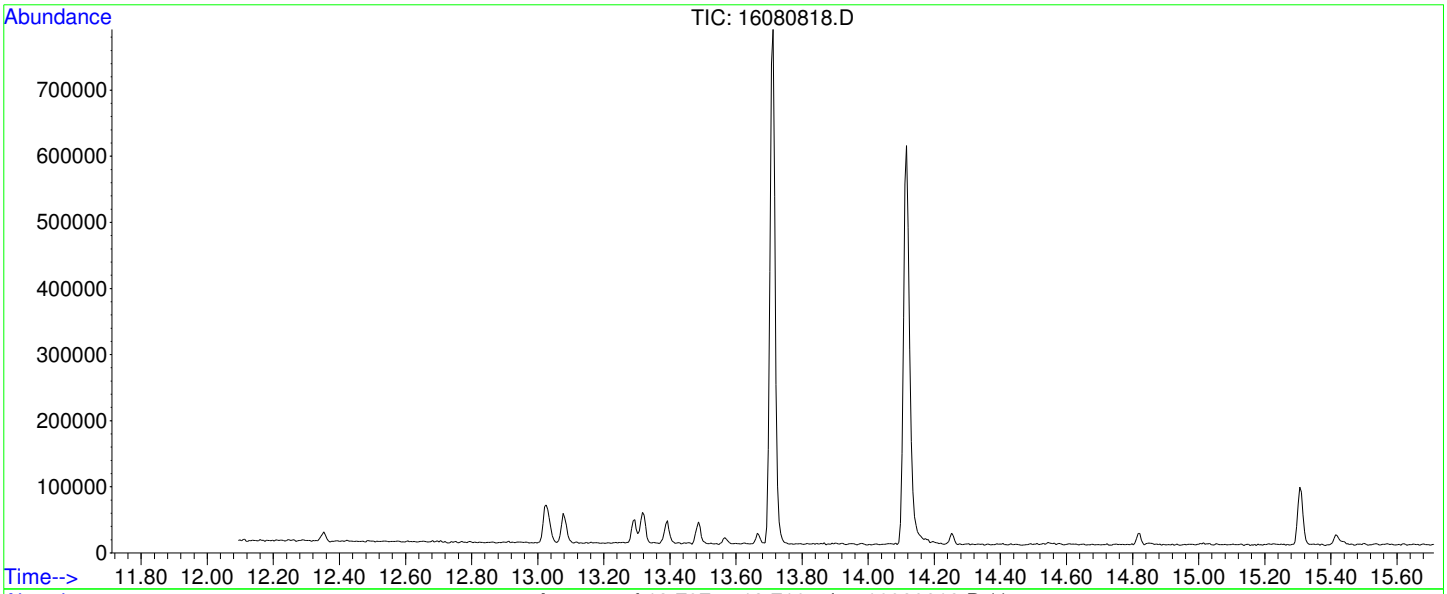


AutoFind: Scans 344, 345, 346; Background Corrected with Scan 338

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	10	80	36.2	27046	PASS
68	69	0.00	2	0.6	171	PASS
69	198	0.00	100	38.6	28883	PASS
70	69	0.00	2	0.0	0	PASS
127	198	10	80	51.9	38821	PASS
197	198	0.00	2	0.0	0	PASS
198	198	100	100	100.0	74736	PASS
199	198	5	9	6.8	5110	PASS
275	198	10	60	29.0	21659	PASS
365	198	1	200	4.5	3327	PASS
441	442	0.01	24	14.2	13444	PASS
442	198	50	400	127.1	94960	PASS
443	442	15	24	19.6	18609	PASS

REVIEWED BY
By Janice Whitt at 4:06:16 PM, 8/15/2016

Data File : C:\HPCHEM\1\DATA\160808\16080818.D Vial: 18
Acq On : 8 Aug 2016 9:39 pm Operator: DEW
Sample : DFTPP2-160808 Inst : GC/MS #6
Misc : TUNE Multiplr: 1.00
MS Integration Params: RTEINT.P
Method : C:\HPCHEM\1\METHODS\DFTPPPAH.M (RTE Integrator)
Title : PAH Calibration



AutoFind: Scans 344, 345, 346; Background Corrected with Scan 338

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	10	80	34.7	25235	PASS
68	69	0.00	2	0.0	0	PASS
69	198	0.00	100	37.3	27128	PASS
70	69	0.00	2	0.0	0	PASS
127	198	10	80	49.0	35683	PASS
197	198	0.00	2	0.0	0	PASS
198	198	100	100	100.0	72776	PASS
199	198	5	9	6.6	4772	PASS
275	198	10	60	28.9	21045	PASS
365	198	1	200	4.3	3154	PASS
441	442	0.01	24	14.7	14314	PASS
442	198	50	400	133.4	97088	PASS
443	442	15	24	19.2	18669	PASS

REVIEWED BY
By Janice Whitt at 4:06:21 PM, 8/15/2016

Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160808\16080802.D Vial: 2
Acq On : 8 Aug 2016 10:50 am Operator: DEW
Sample : ICV-160808 Inst : GC/MS #6
Misc : ICV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 9 9:17 2016 Quant Results File: PP160801.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration
DataAcq Meth : PP160801

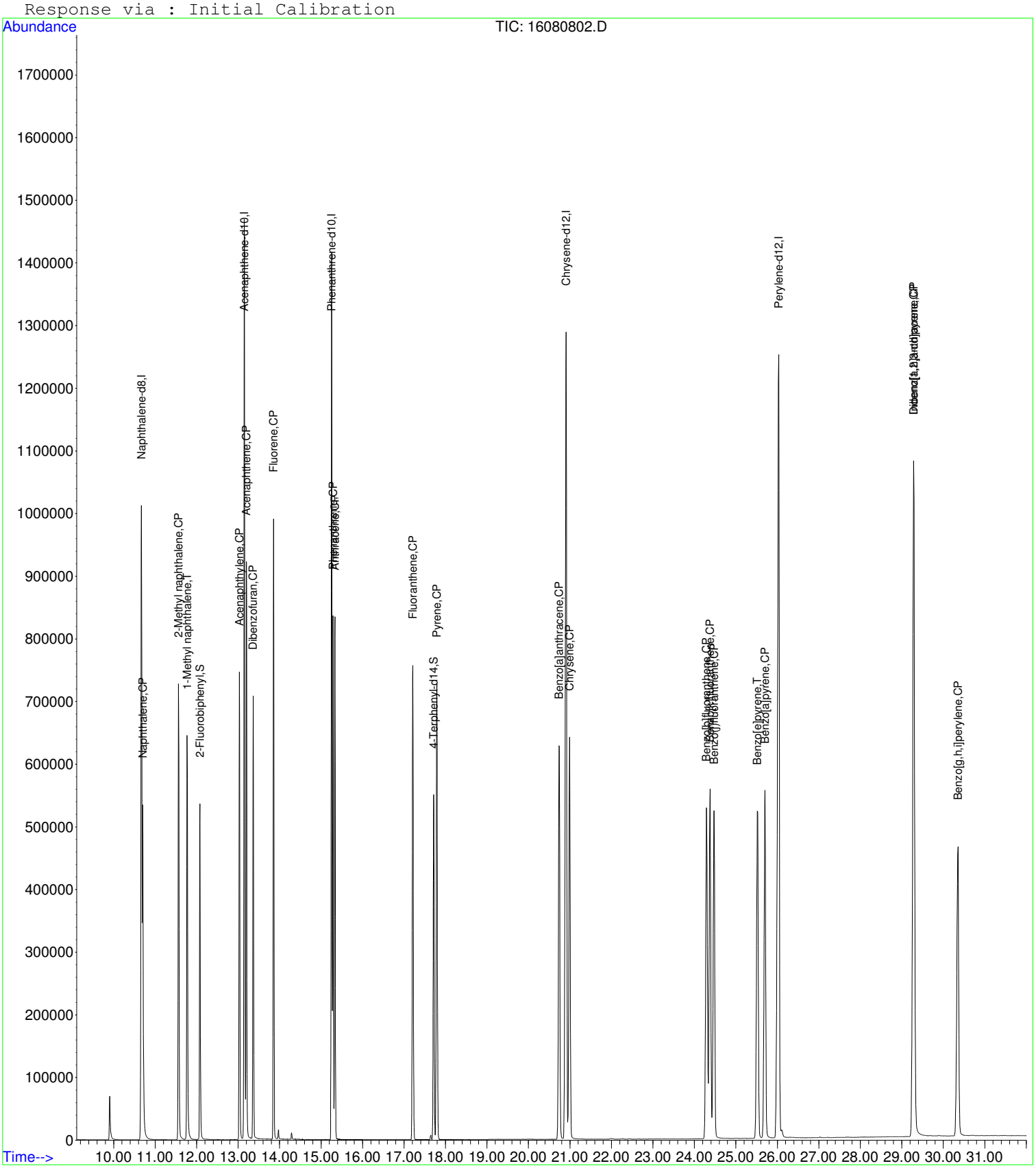
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.67	136	1528416	4000.00	ug/kg	109
5) Acenaphthene-d10	13.15	164	867911	4000.00	ug/kg	145
11) Phenanthrene-d10	15.25	188	1700838	4000.00	ug/kg	107
17) Chrysene-d12	20.91	240	2292711	4000.00	ug/kg	125
20) Perylene-d12	26.03	264	2545465	4000.00	ug/kg	132
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.08	172	535199	1767.86	ug/kg	-0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery = 44.20%			
16) 4-Terphenyl-d14	17.71	244	770136	1918.73	ug/kg	-0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery = 47.97%			
Target Compounds						Qvalue
2) Naphthalene	10.70	128	636964	1831.66	ug/kg	100
3) 2-Methyl naphthalene	11.56	142	459964	2040.30	ug/kg	96
4) 1-Methyl naphthalene	11.77	142	413947	2072.97	ug/kg	97
6) Dibenzofuran	13.36	168	642919	1830.47	ug/kg	100
8) Acenaphthylene	13.03	152	727996	1894.13	ug/kg	100
9) Acenaphthene	13.20	154	420683	1889.90	ug/kg	100
10) Fluorene	13.85	166	532773	1904.06	ug/kg	99
12) Phenanthrene	15.29	178	735487	1823.94	ug/kg	100
13) Anthracene	15.33	178	768485	1811.16	ug/kg	100
14) Fluoranthene	17.21	202	849706	1778.10	ug/kg	100
15) Pyrene	17.79	202	866163	1787.55	ug/kg	100
18) Benzo[a]anthracene	20.74	228	983644	1903.47	ug/kg	100
19) Chrysene	20.99	228	923250	1857.11	ug/kg	100
21) Benzo[b]fluoranthene	24.29	252	1128387	1920.22	ug/kg	100
22) Benzo[k]fluoranthene	24.38	252	1055568	1958.03	ug/kg	99
23) Benzo(j)fluoranthene	24.48	252	998328	1926.99	ug/kg	99
24) Benzo[e]pyrene	25.52	252	1086157	1904.67	ug/kg	99
25) Benzo[a]pyrene	25.70	252	1081291	1904.42	ug/kg	99
26) Dibenz[a,h]anthracene	29.29	278	1060435	1930.02	ug/kg	100
27) Indeno[1,2,3-cd]pyrene	29.29	276	1242374	1905.45	ug/kg	98
28) Benzo[g,h,i]perylene	30.36	276	999942	1831.08	ug/kg	100

(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160808\16080802.D Vial: 2
Acq On : 8 Aug 2016 10:50 am Operator: DEW
Sample : ICV-160808 Inst : GC/MS #6
Misc : ICV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 9 9:17 2016 Quant Results File: PP160801.RES

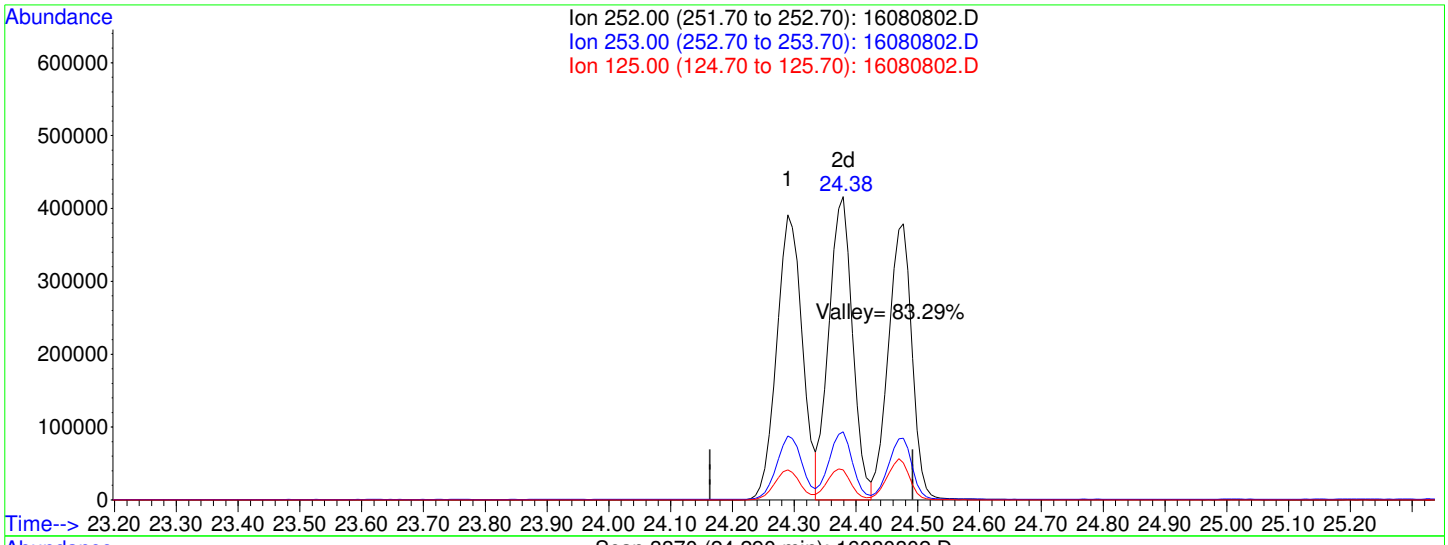
Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration

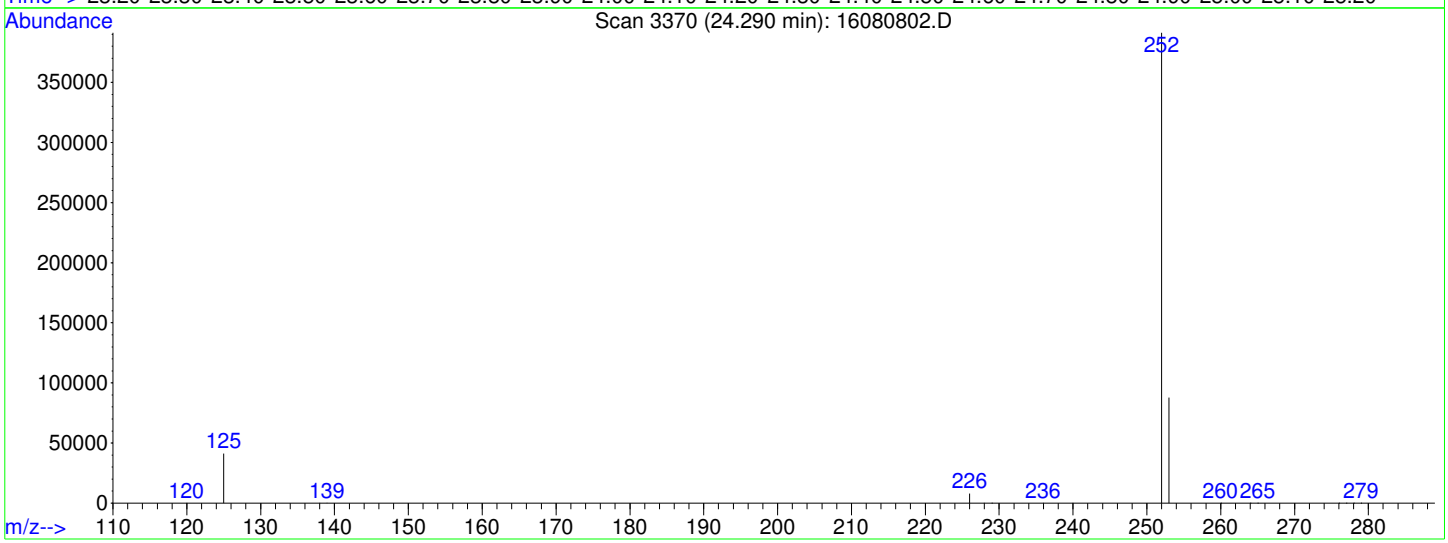


Quantitation Report (Qedit)

Data File : C:\HPCHEM\1\DATA\160808\16080802.D Vial: 2
Acq On : 8 Aug 2016 10:50 am Operator: DEW
Sample : ICV-160808 Inst : GC/MS #6
Misc : ICV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 8 11:22 2016 Quant Results File: temp.res

Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Multiple Level Calibration





TIC: 16080802.D

(21) Benzo[b]fluoranthene (CP)

24.29min 1920.22ug/kg

response 1128387

Ion	Exp%	Act%
252.00	100	100
253.00	22.00	22.23
125.00	10.60	10.56
0.00	0.00	0.00

Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160808\16080803.D Vial: 3
Acq On : 8 Aug 2016 11:30 am Operator: DEW
Sample : LCS-76583 Inst : GC/MS #6
Misc : LCS Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 9 9:17 2016 Quant Results File: PP160801.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration
DataAcq Meth : PP160801

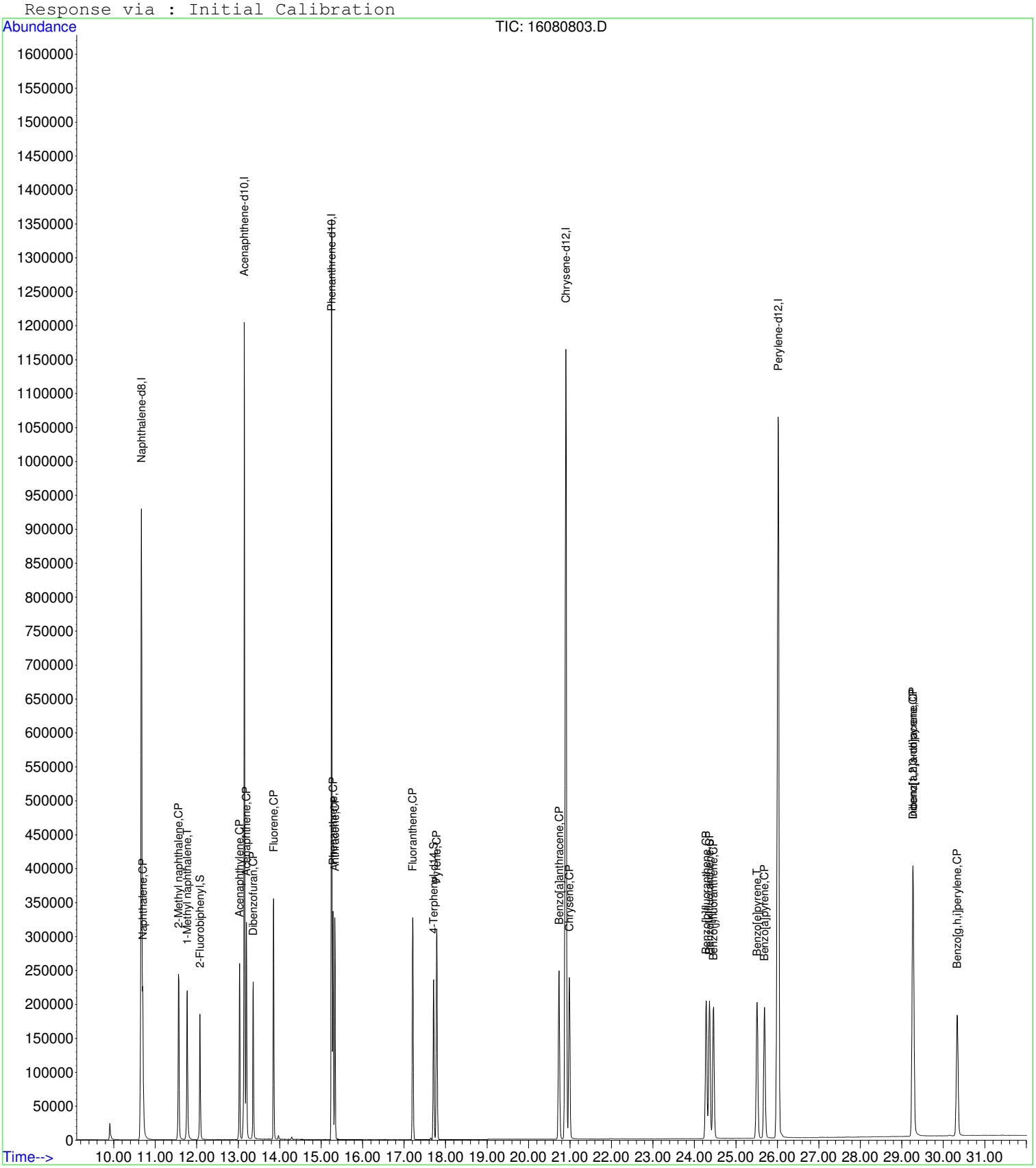
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.67	136	1541703	4000.00	ug/kg	110
5) Acenaphthene-d10	13.15	164	748399	4000.00	ug/kg	125
11) Phenanthrene-d10	15.25	188	1565255	4000.00	ug/kg	98
17) Chrysene-d12	20.90	240	2012941	4000.00	ug/kg	110
20) Perylene-d12	26.02	264	2116064	4000.00	ug/kg	110
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.08	172	198190	759.20	ug/kg	-0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery = 18.98%#			
16) 4-Terphenyl-d14	17.71	244	330004	893.39	ug/kg	-0.03
Spiked Amount 4000.000	Range 40 - 140		Recovery = 22.33%#			
Target Compounds						Qvalue
2) Naphthalene	10.70	128	259375	739.43	ug/kg	100
3) 2-Methyl naphthalene	11.57	142	178872	786.60	ug/kg	100
4) 1-Methyl naphthalene	11.77	142	161514	801.86	ug/kg	98
6) Dibenzofuran	13.36	168	231734	765.13	ug/kg	99
8) Acenaphthylene	13.03	152	263467	794.96	ug/kg	100
9) Acenaphthene	13.20	154	154390	804.35	ug/kg	99
10) Fluorene	13.85	166	196218	813.24	ug/kg	99
12) Phenanthrene	15.29	178	298133	803.39	ug/kg	100
13) Anthracene	15.33	178	299990	768.26	ug/kg	100
14) Fluoranthene	17.21	202	359645	817.78	ug/kg	99
15) Pyrene	17.79	202	363158	814.39	ug/kg	99
18) Benzo[a]anthracene	20.74	228	376818	830.53	ug/kg	99
19) Chrysene	20.98	228	347292	795.67	ug/kg	99
21) Benzo[b]fluoranthene	24.28	252	411640	842.65	ug/kg	100
22) Benzo[k]fluoranthene	24.36	252	378685	844.99	ug/kg	99
23) Benzo(j)fluoranthene	24.46	252	370595	860.48	ug/kg	99
24) Benzo[e]pyrene	25.51	252	403190	850.50	ug/kg	99
25) Benzo[a]pyrene	25.69	252	379569	804.17	ug/kg	99
26) Dibenz[a,h]anthracene	29.26	278	386684	846.59	ug/kg	99
27) Indeno[1,2,3-cd]pyrene	29.27	276	462497	853.28	ug/kg	99
28) Benzo[g,h,i]perylene	30.34	276	367824	810.23	ug/kg	98

(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160808\16080803.D Vial: 3
Acq On : 8 Aug 2016 11:30 am Operator: DEW
Sample : LCS-76583 Inst : GC/MS #6
Misc : LCS Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 9 9:17 2016 Quant Results File: PP160801.RES

Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160808\16080804.D Vial: 4
Acq On : 8 Aug 2016 12:10 pm Operator: DEW
Sample : MB-76583 Inst : GC/MS #6
Misc : MBLK Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 9 9:17 2016 Quant Results File: PP160801.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration
DataAcq Meth : PP160801

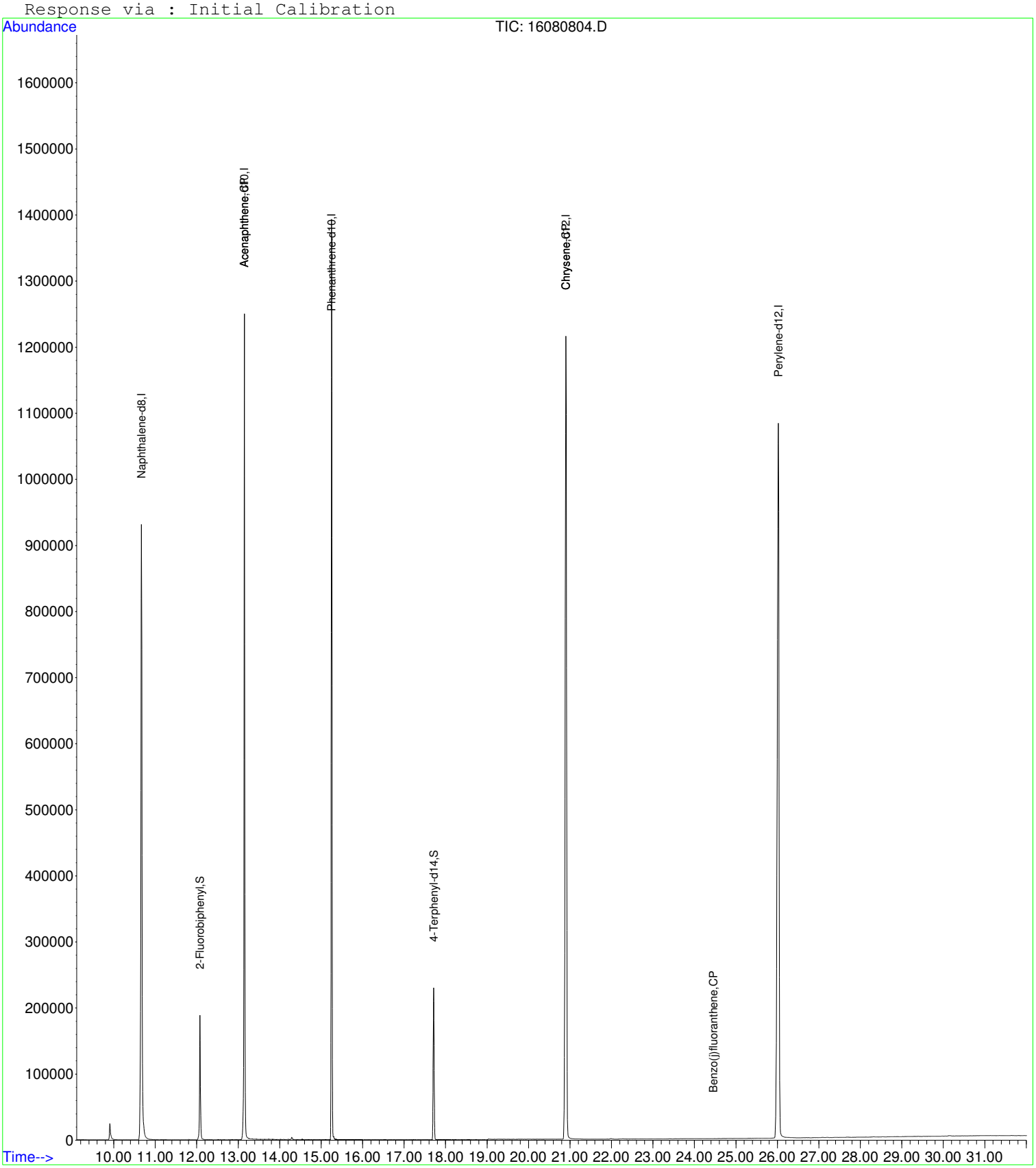
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.67	136	1629876	4000.00	ug/kg	116
5) Acenaphthene-d10	13.15	164	791521	4000.00	ug/kg	132
11) Phenanthrene-d10	15.25	188	1625719	4000.00	ug/kg	102
17) Chrysene-d12	20.90	240	2108304	4000.00	ug/kg	115
20) Perylene-d12	26.03	264	2196820	4000.00	ug/kg	114
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.08	172	202147	732.17	ug/kg	-0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery = 18.30%#			
16) 4-Terphenyl-d14	17.71	244	322099	839.56	ug/kg	-0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery = 20.99%#			
Target Compounds						Qvalue
9) Acenaphthene	13.15	154	2662	~~13.11 ug/kg#~~		~~12~~
19) Chrysene	20.90	228	4504	~~9.85 ug/kg~~		~~72~~
23) Benzo(j)fluoranthene	24.47	252	62	0.14	ug/kg	91

(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160808\16080804.D Vial: 4
Acq On : 8 Aug 2016 12:10 pm Operator: DEW
Sample : MB-76583 Inst : GC/MS #6
Misc : MBLK Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 9 9:17 2016 Quant Results File: PP160801.RES

Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160808\16080819.D Vial: 19
Acq On : 8 Aug 2016 10:19 pm Operator: DEW
Sample : ICV2-160808 Inst : GC/MS #6
Misc : ICV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 9 9:17 2016 Quant Results File: PP160801.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration
DataAcq Meth : PP160801

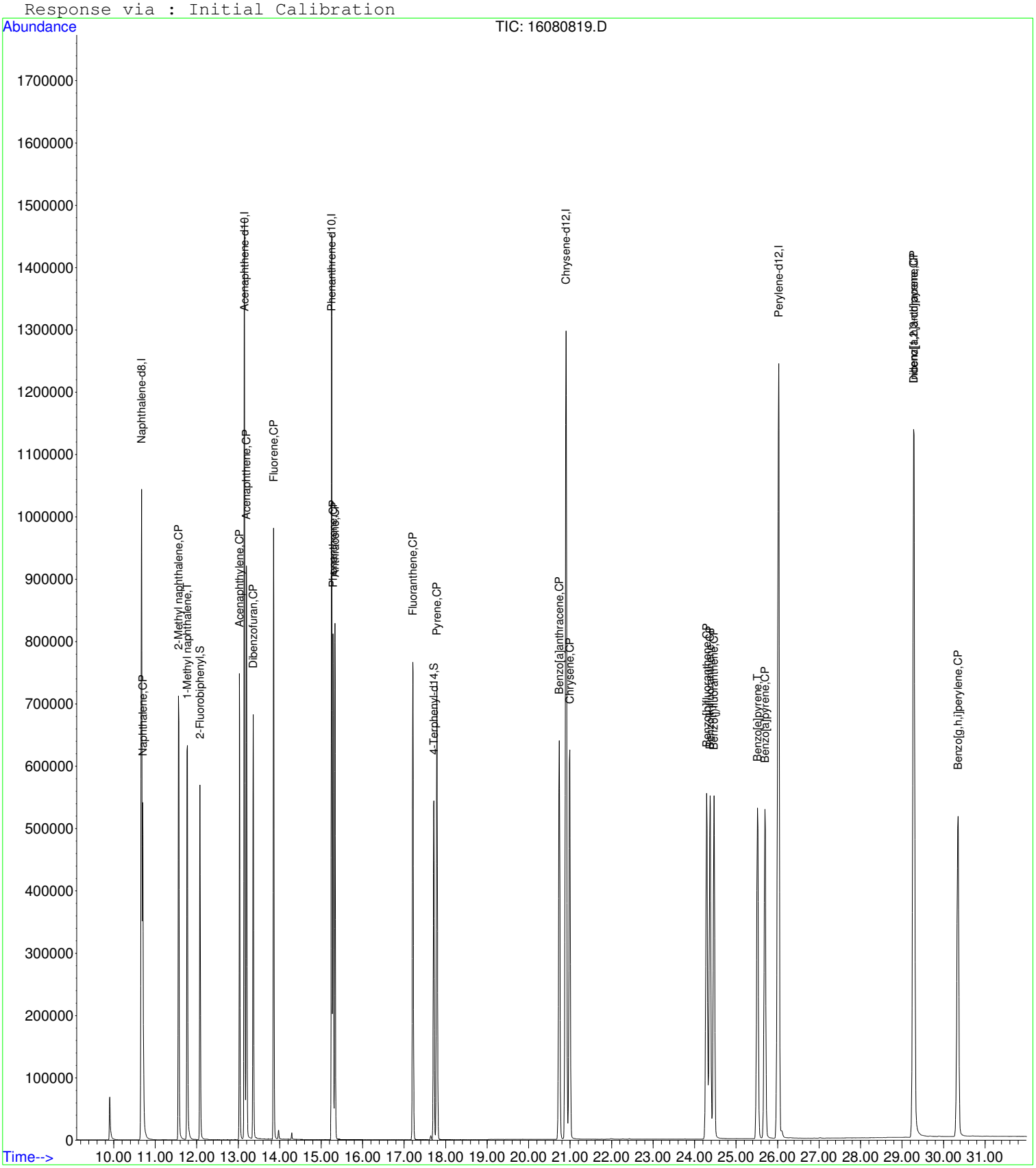
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.67	136	1552010	4000.00	ug/kg	111
5) Acenaphthene-d10	13.15	164	869342	4000.00	ug/kg	145
11) Phenanthrene-d10	15.25	188	1712926	4000.00	ug/kg	108
17) Chrysene-d12	20.90	240	2312625	4000.00	ug/kg	126
20) Perylene-d12	26.03	264	2515450	4000.00	ug/kg	130
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.08	172	538136	1774.63	ug/kg	-0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery = 44.37%			
16) 4-Terphenyl-d14	17.71	244	768891	1902.11	ug/kg	-0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery = 47.55%			
Target Compounds						Qvalue
2) Naphthalene	10.70	128	640455	1813.70	ug/kg	100
3) 2-Methyl naphthalene	11.56	142	460978	2013.71	ug/kg	95
4) 1-Methyl naphthalene	11.77	142	417621	2059.58	ug/kg	98
6) Dibenzofuran	13.36	168	638842	1815.86	ug/kg	100
8) Acenaphthylene	13.03	152	717927	1864.85	ug/kg	100
9) Acenaphthene	13.20	154	422305	1894.06	ug/kg	100
10) Fluorene	13.85	166	530316	1892.16	ug/kg	99
12) Phenanthrene	15.29	178	734777	1809.32	ug/kg	100
13) Anthracene	15.33	178	764378	1788.77	ug/kg	100
14) Fluoranthene	17.21	202	843851	1753.38	ug/kg	100
15) Pyrene	17.79	202	863708	1769.90	ug/kg	100
18) Benzo[a]anthracene	20.74	228	986523	1892.60	ug/kg	99
19) Chrysene	20.99	228	931165	1856.90	ug/kg	99
21) Benzo[b]fluoranthene	24.29	252	1105119	1903.07	ug/kg	99
22) Benzo[k]fluoranthene	24.37	252	1036671	1945.93	ug/kg	99
23) Benzo(j)fluoranthene	24.47	252	999377	1952.03	ug/kg	100
24) Benzo[e]pyrene	25.52	252	1081369	1918.90	ug/kg	99
25) Benzo[a]pyrene	25.70	252	1066411	1900.62	ug/kg	99
26) Dibenz[a,h]anthracene	29.28	278	1119337	2061.53	ug/kg	98
27) Indeno[1,2,3-cd]pyrene	29.29	276	1305778	2026.59	ug/kg	99
28) Benzo[g,h,i]perylene	30.35	276	1098140	2034.89	ug/kg	97

(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160808\16080819.D Vial: 19
Acq On : 8 Aug 2016 10:19 pm Operator: DEW
Sample : ICV2-160808 Inst : GC/MS #6
Misc : ICV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 9 9:17 2016 Quant Results File: PP160801.RES

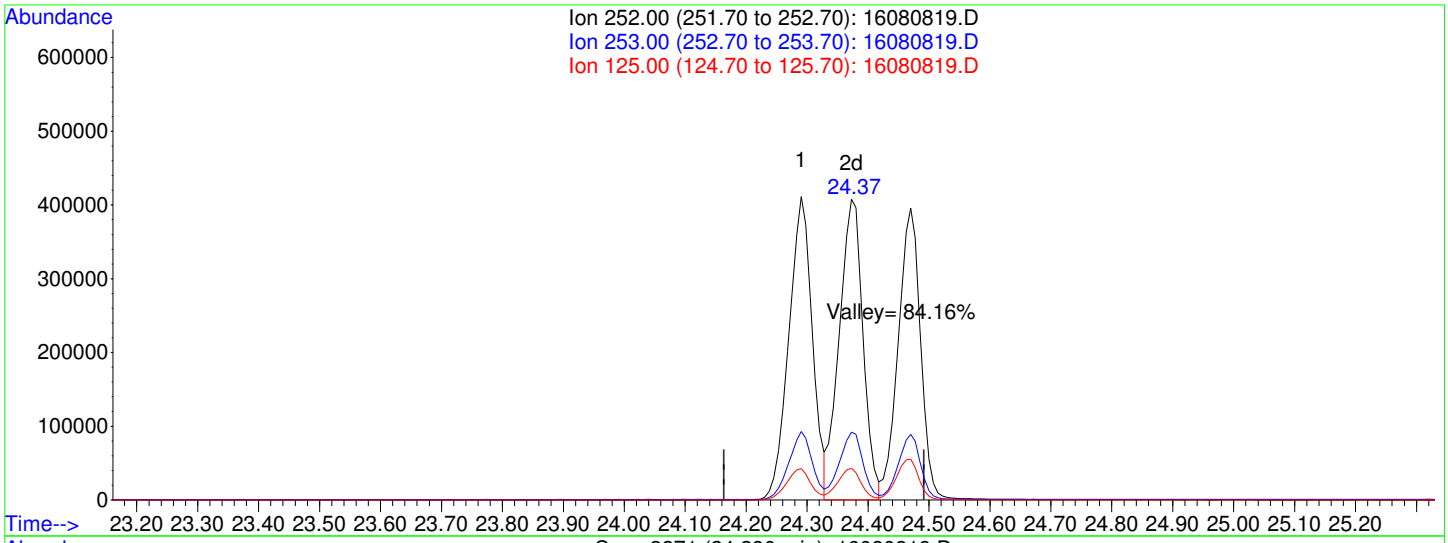
Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration

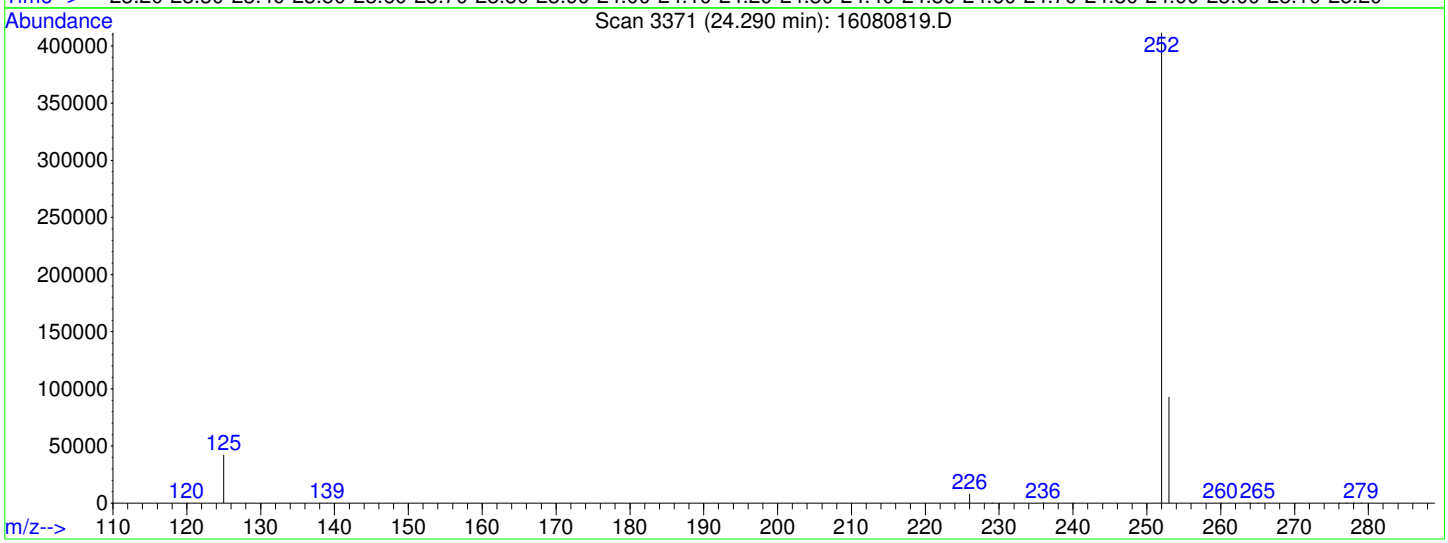


Quantitation Report (Qedit)

Data File : C:\HPCHEM\1\DATA\160808\16080819.D Vial: 19
Acq On : 8 Aug 2016 10:19 pm Operator: DEW
Sample : ICV2-160808 Inst : GC/MS #6
Misc : ICV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 8 22:51 2016 Quant Results File: temp.res

Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Multiple Level Calibration





TIC: 16080819.D

(21) Benzo[b]fluoranthene (CP)

24.29min 1903.07ug/kg

response 1105119

Ion	Exp%	Act%
252.00	100	100
253.00	22.00	22.40
125.00	10.60	10.28
0.00	0.00	0.00

Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160808\16080821.D Vial: 21
Acq On : 8 Aug 2016 11:41 pm Operator: DEW
Sample : SB-160808 Inst : GC/MS #6
Misc : SBLK Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 9 9:18 2016 Quant Results File: PP160801.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration
DataAcq Meth : PP160801

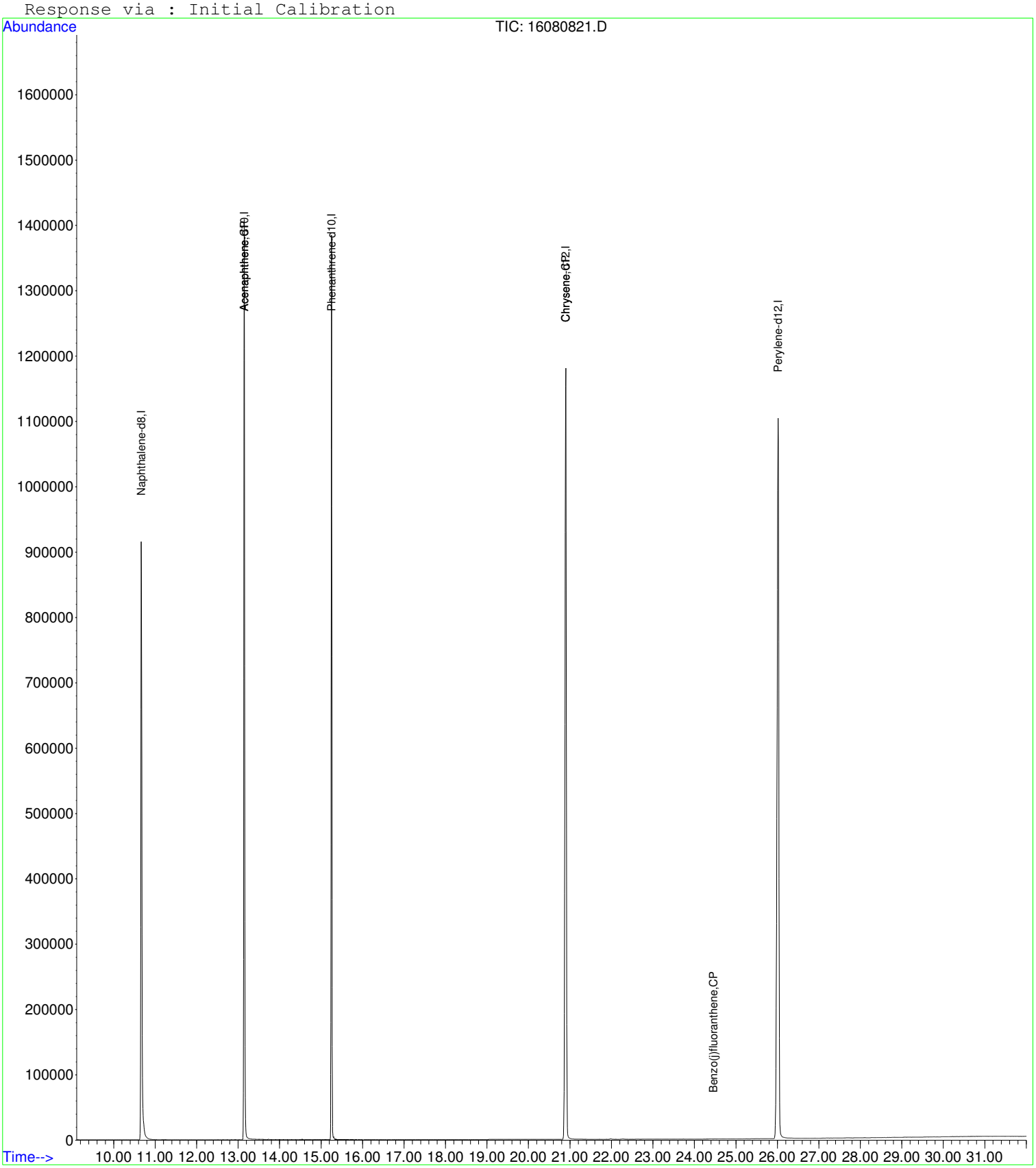
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.67	136	1474476	4000.00	ug/kg	105
5) Acenaphthene-d10	13.15	164	831517	4000.00	ug/kg	139
11) Phenanthrene-d10	15.25	188	1573704	4000.00	ug/kg	99
17) Chrysene-d12	20.90	240	2079132	4000.00	ug/kg	113
20) Perylene-d12	26.02	264	2219968	4000.00	ug/kg	115
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.10	172	31	0.11	ug/kg	0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery =	0.00%#		
16) 4-Terphenyl-d14	17.67	244	5	0.01	ug/kg	-0.06
Spiked Amount 4000.000	Range 40 - 140		Recovery =	0.00%#		
Target Compounds						Qvalue
9) Acenaphthene	13.15	154	2853	13.38	ug/kg#	11
19) Chrysene	20.90	228	4433	9.83	ug/kg	69
23) Benzo(j)fluoranthene	24.45	252	15	0.03	ug/kg#	1

(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160808\16080821.D Vial: 21
Acq On : 8 Aug 2016 11:41 pm Operator: DEW
Sample : SB-160808 Inst : GC/MS #6
Misc : SBLK Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 9 9:18 2016 Quant Results File: PP160801.RES

Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160808\16080825.D Vial: 25
Acq On : 9 Aug 2016 2:23 am Operator: DEW
Sample : 1607317-01A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 9 15:00 2016 Quant Results File: PP160801.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration
DataAcq Meth : PP160801

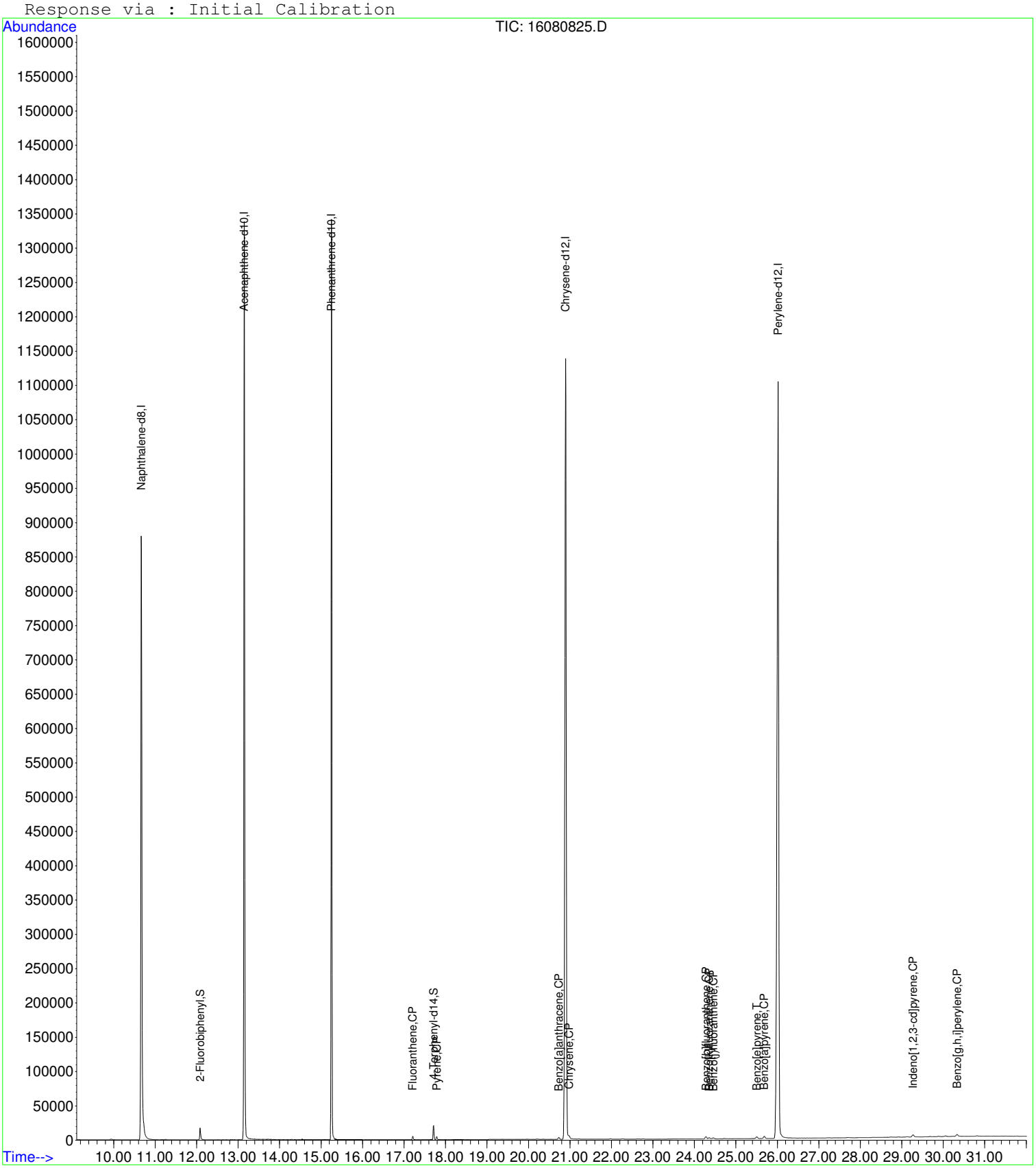
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.66	136	1457743	4000.00	ug/kg	104
5) Acenaphthene-d10	13.15	164	796018	4000.00	ug/kg	133
11) Phenanthrene-d10	15.25	188	1521025	4000.00	ug/kg	96
17) Chrysene-d12	20.89	240	1994516	4000.00	ug/kg	109
20) Perylene-d12	26.02	264	2147619	4000.00	ug/kg	111
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.09	172	20665	74.43	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.86%#		
16) 4-Terphenyl-d14	17.71	244	29138	81.18	ug/kg	-0.03
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.03%#		
Target Compounds						Qvalue
14) Fluoranthene	17.21	202	6155	14.40	ug/kg	97
15) Pyrene	17.79	202	6064	13.99	ug/kg	97
18) Benzo[a]anthracene	20.73	228	4389	9.76	ug/kg	98
19) Chrysene	20.98	228	5674	13.12	ug/kg	98
21) Benzo[b]fluoranthene	24.28	252	6945	14.01	ug/kg	99
22) Benzo[k]fluoranthene	24.36	252	3298	7.25	ug/kg	95
23) Benzo(j)fluoranthene	24.46	252	3147	7.20	ug/kg	94
24) Benzo[e]pyrene	25.50	252	5437	11.30	ug/kg	97
25) Benzo[a]pyrene	25.68	252	6851	14.30	ug/kg	96
27) Indeno[1,2,3-cd]pyrene	29.27	276	5945	10.81	ug/kg	93
28) Benzo[g,h,i]perylene	30.33	276	6202	13.46	ug/kg	97

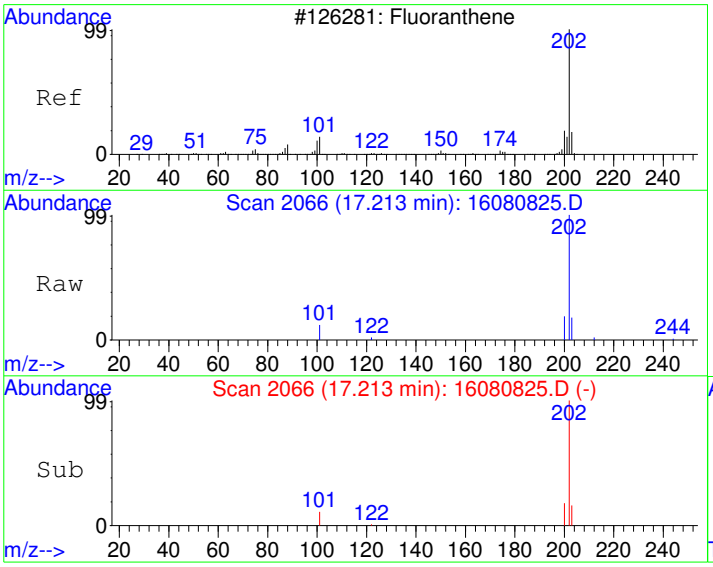
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160808\16080825.D Vial: 25
Acq On : 9 Aug 2016 2:23 am Operator: DEW
Sample : 1607317-01A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 9 15:00 2016 Quant Results File: PP160801.RES

Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration

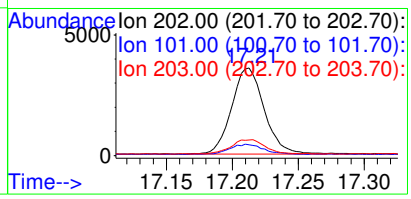


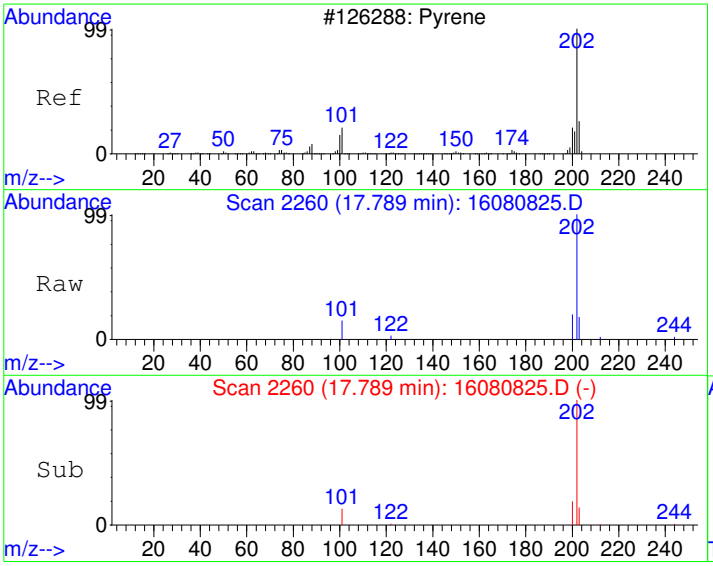


#14
Fluoranthene
Concen: 14.40 ug/kg
RT: 17.21 min Scan# 2066
Delta R.T. -0.02 min
Lab File: 16080825.D
Acq: 9 Aug 2016 2:23 am

Tgt Ion:202 Resp: 6155

Ion	Ratio	Lower	Upper
202	100		
101	11.1	0.0	42.1
203	16.1	0.0	47.9

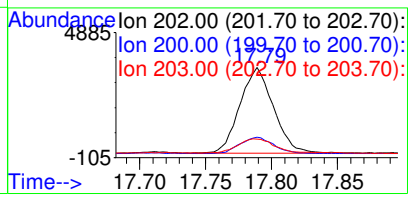


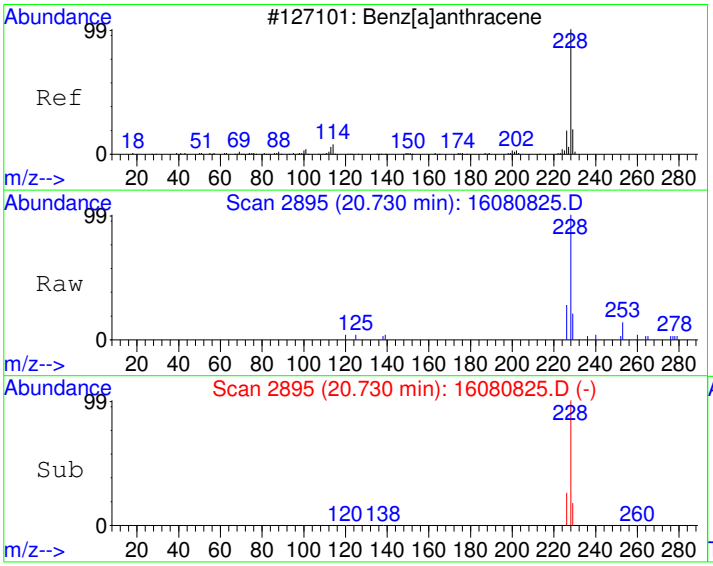


#15
Pyrene
Concen: 13.99 ug/kg
RT: 17.79 min Scan# 2260
Delta R.T. -0.02 min
Lab File: 16080825.D
Acq: 9 Aug 2016 2:23 am

Tgt Ion:202 Resp: 6064

Ion	Ratio	Lower	Upper
202	100		
200	18.9	0.0	49.7
203	16.1	0.0	47.8

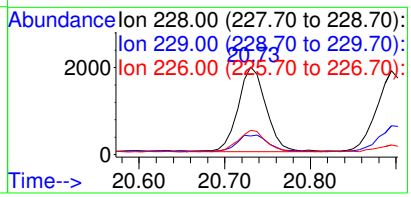


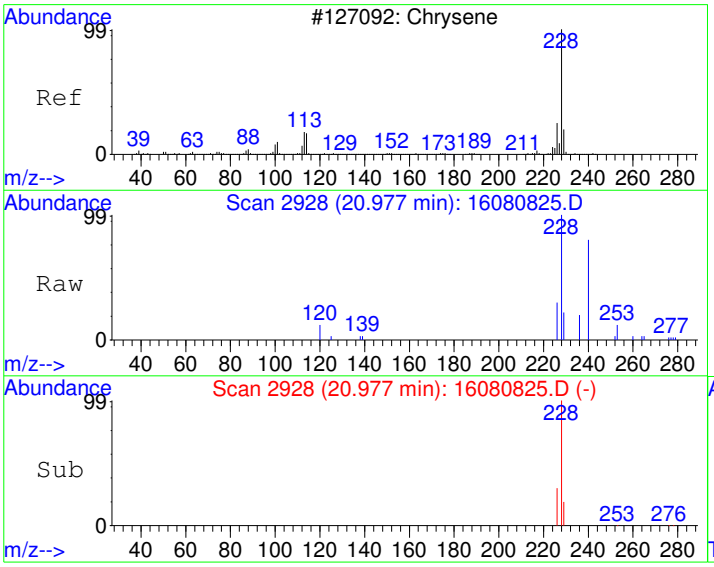


#18
Benzo[a]anthracene
Concen: 9.76 ug/kg
RT: 20.73 min Scan# 2895
Delta R.T. -0.04 min
Lab File: 16080825.D
Acq: 9 Aug 2016 2:23 am

Tgt Ion:228 Resp: 4389

Ion	Ratio	Lower	Upper
228	100		
229	17.8	0.0	49.8
226	25.5	0.0	55.8

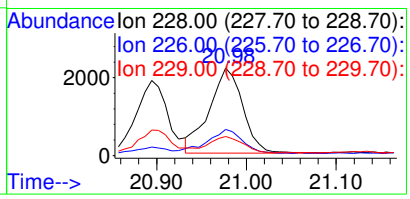


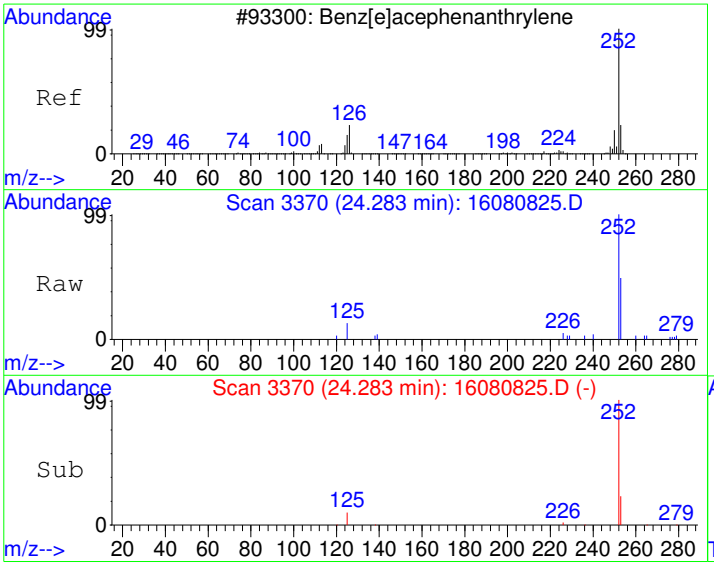


#19
Chrysene
Concen: 13.12 ug/kg
RT: 20.98 min Scan# 2928
Delta R.T. -0.05 min
Lab File: 16080825.D
Acq: 9 Aug 2016 2:23 am

Tgt Ion:228 Resp: 5674

Ion	Ratio	Lower	Upper
228	100		
226	27.7	0.0	58.1
229	18.8	0.0	50.0

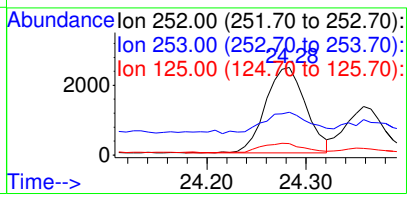


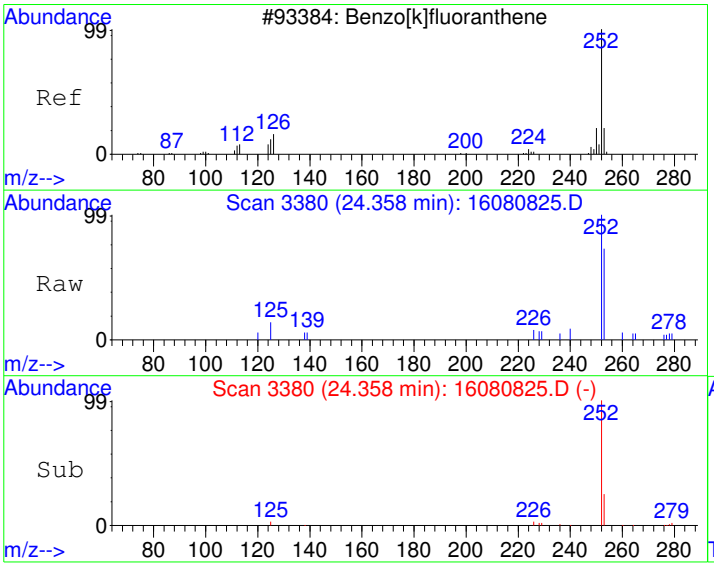


#21
Benzo[b]fluoranthene
Concen: 14.01 ug/kg
RT: 24.28 min Scan# 3370
Delta R.T. -0.05 min
Lab File: 16080825.D
Acq: 9 Aug 2016 2:23 am

Tgt Ion:252 Resp: 6945

Ion	Ratio	Lower	Upper
252	100		
253	22.7	0.0	52.0
125	10.3	0.0	40.6

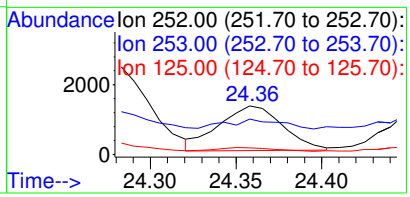


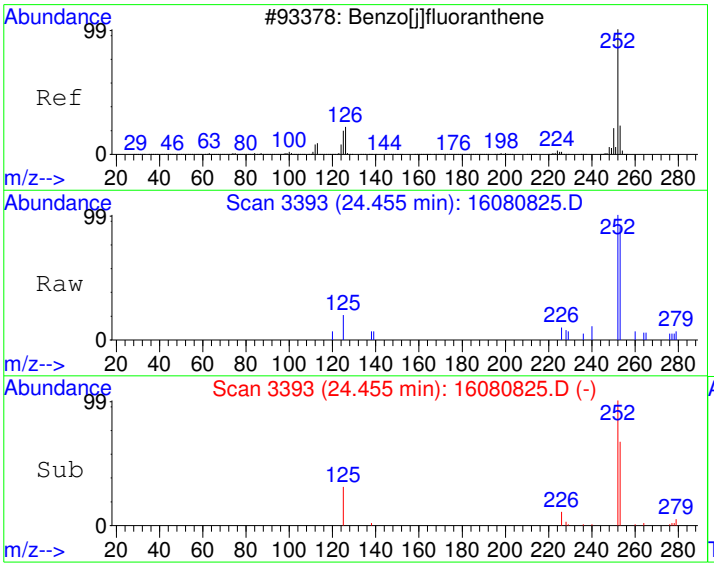


#22
Benzo[k]fluoranthene
Concen: 7.25 ug/kg
RT: 24.36 min Scan# 3380
Delta R.T. -0.05 min
Lab File: 16080825.D
Acq: 9 Aug 2016 2:23 am

Tgt Ion:252 Resp: 3298

Ion	Ratio	Lower	Upper
252	100		
253	20.9	2.2	42.2
125	7.1	0.0	30.3

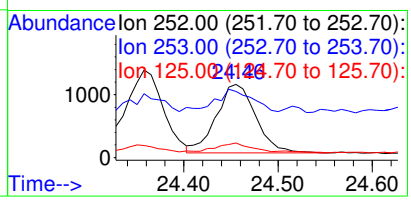


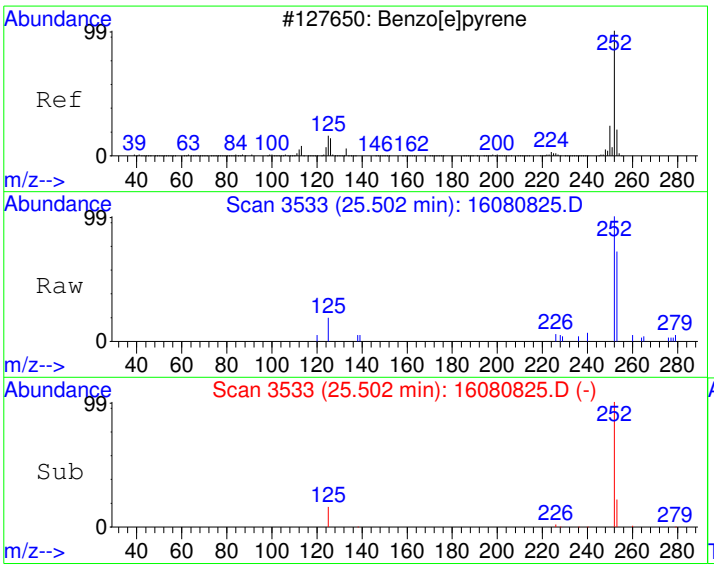


#23
Benzo(j)fluoranthene
Concen: 7.20 ug/kg
RT: 24.46 min Scan# 3393
Delta R.T. -0.05 min
Lab File: 16080825.D
Acq: 9 Aug 2016 2:23 am

Tgt Ion:252 Resp: 3147

Ion	Ratio	Lower	Upper
252	100		
253	27.2	2.2	42.2
125	14.6	0.0	34.4

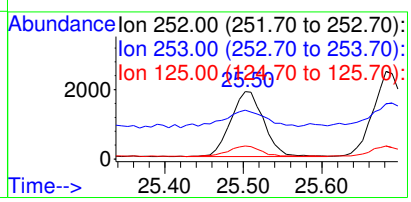


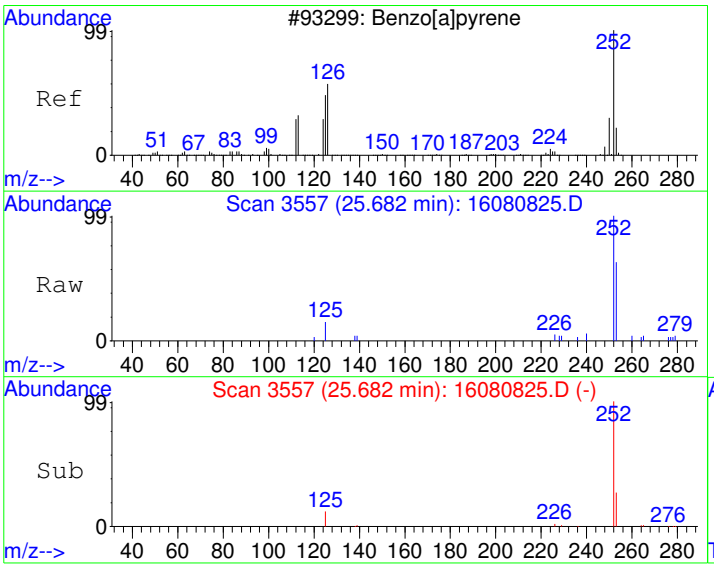


#24
Benzo[e]pyrene
Concen: 11.30 ug/kg
RT: 25.50 min Scan# 3533
Delta R.T. -0.05 min
Lab File: 16080825.D
Acq: 9 Aug 2016 2:23 am

Tgt Ion:252 Resp: 5437

Ion	Ratio	Lower	Upper
252	100		
253	24.2	2.2	42.2
125	16.0	0.0	35.7

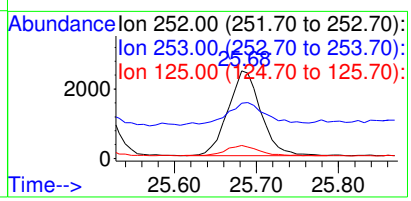


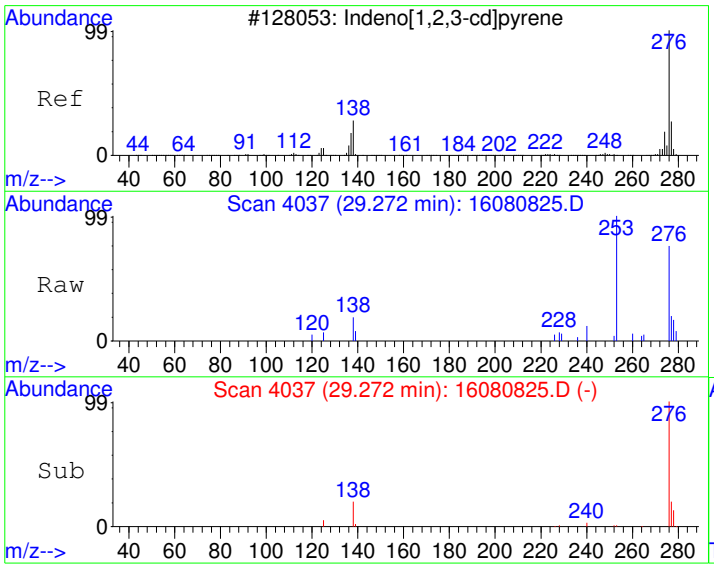


#25
Benzo[a]pyrene
Concen: 14.30 ug/kg
RT: 25.68 min Scan# 3557
Delta R.T. -0.05 min
Lab File: 16080825.D
Acq: 9 Aug 2016 2:23 am

Tgt Ion:252 Resp: 6851

Ion	Ratio	Lower	Upper
252	100		
253	24.4	2.0	42.0
125	12.0	0.0	31.6

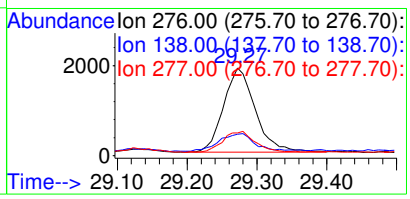


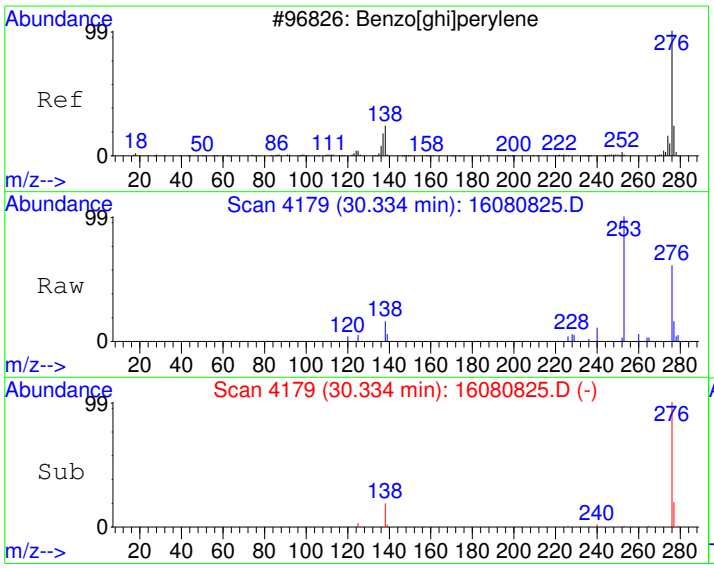


#27
Indeno[1,2,3-cd]pyrene
Concen: 10.81 ug/kg
RT: 29.27 min Scan# 4037
Delta R.T. -0.05 min
Lab File: 16080825.D
Acq: 9 Aug 2016 2:23 am

Tgt Ion:276 Resp: 5945

Ion	Ratio	Lower	Upper
276	100		
138	20.2	4.8	44.8
277	23.2	5.6	45.6

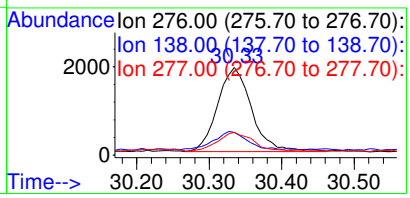




#28
Benzo[g,h,i]perylene
Concen: 13.46 ug/kg
RT: 30.33 min Scan# 4179
Delta R.T. -0.06 min
Lab File: 16080825.D
Acq: 9 Aug 2016 2:23 am

Tgt Ion:276 Resp: 6202

Ion	Ratio	Lower	Upper
276	100		
138	19.4	0.0	38.1
277	22.5	4.1	44.1



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160808\16080826.D Vial: 26
Acq On : 9 Aug 2016 3:03 am Operator: DEW
Sample : 1607317-02A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 9 9:04 2016 Quant Results File: PP160801.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration
DataAcq Meth : PP160801

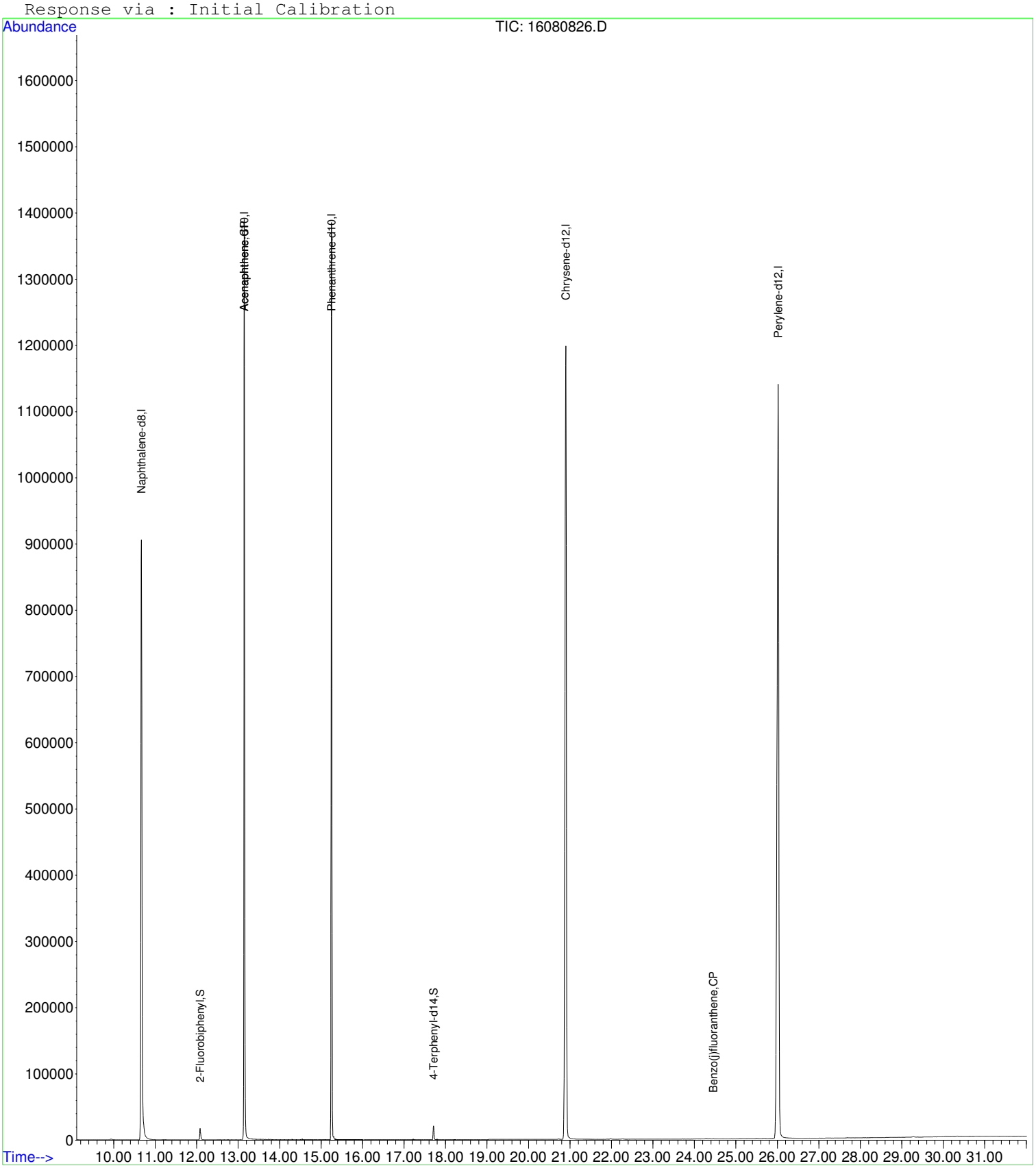
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.67	136	1507825	4000.00	ug/kg	107
5) Acenaphthene-d10	13.15	164	820454	4000.00	ug/kg	137
11) Phenanthrene-d10	15.25	188	1566285	4000.00	ug/kg	98
17) Chrysene-d12	20.90	240	2130140	4000.00	ug/kg	116
20) Perylene-d12	26.02	264	2280200	4000.00	ug/kg	118
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.09	172	21254	74.27	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.86%#		
16) 4-Terphenyl-d14	17.71	244	29380	79.49	ug/kg	-0.03
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.99%#		
Target Compounds						Qvalue
9) Acenaphthene	13.15	154	2755	~~13.09 ug/kg#~~		~~11~~
23) Benzo(j)fluoranthene	24.45	252	631	1.36	ug/kg	86

(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160808\16080826.D Vial: 26
Acq On : 9 Aug 2016 3:03 am Operator: DEW
Sample : 1607317-02A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 9 9:04 2016 Quant Results File: PP160801.RES

Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160808\16080827.D Vial: 27
Acq On : 9 Aug 2016 3:43 am Operator: DEW
Sample : 1607317-03A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 9 9:04 2016 Quant Results File: PP160801.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration
DataAcq Meth : PP160801

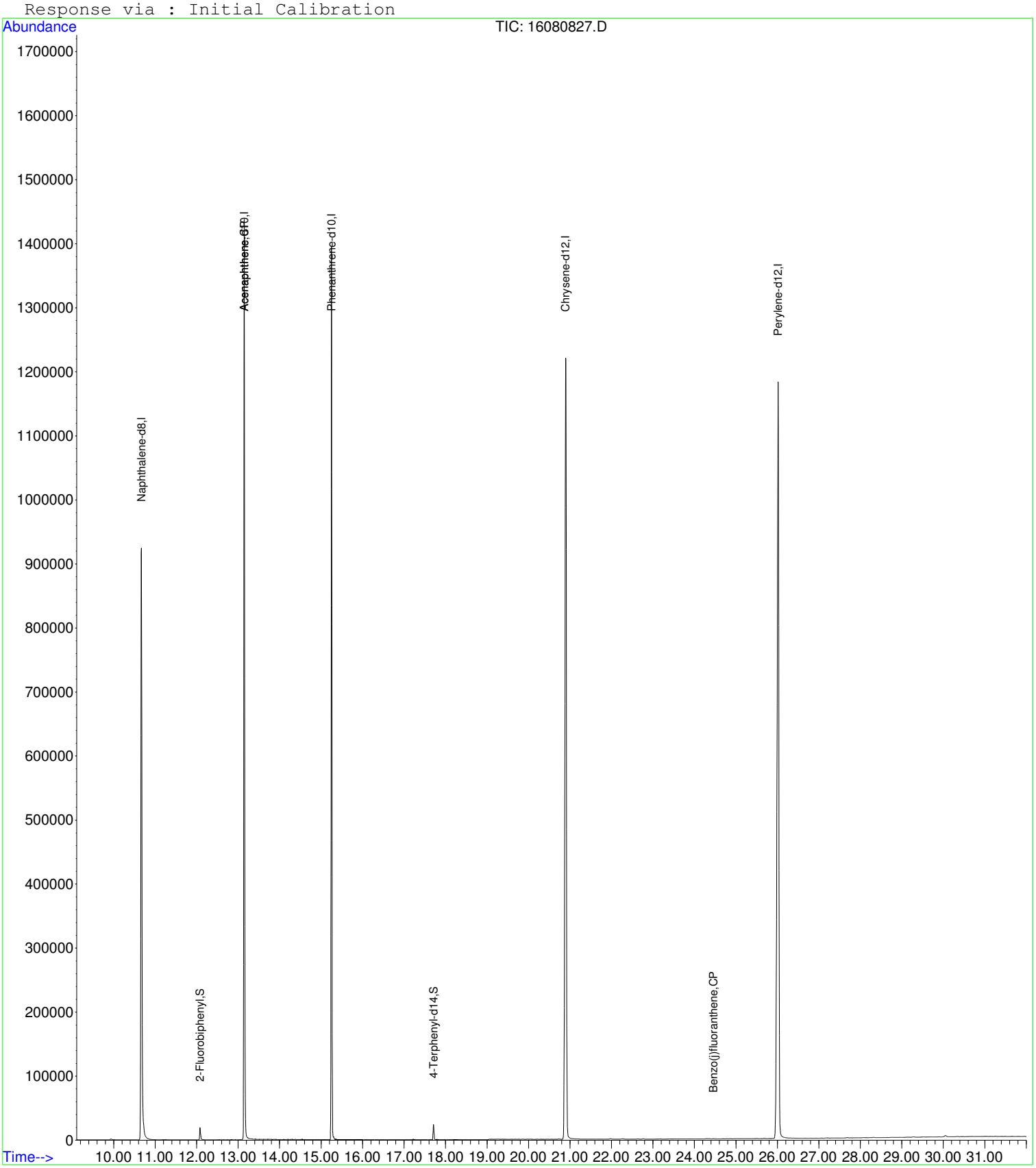
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.67	136	1520749	4000.00	ug/kg	108
5) Acenaphthene-d10	13.15	164	838593	4000.00	ug/kg	140
11) Phenanthrene-d10	15.25	188	1625485	4000.00	ug/kg	102
17) Chrysene-d12	20.90	240	2169176	4000.00	ug/kg	118
20) Perylene-d12	26.02	264	2332419	4000.00	ug/kg	121
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.08	172	22325	76.32	ug/kg	-0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.91%#		
16) 4-Terphenyl-d14	17.71	244	32873	85.70	ug/kg	-0.03
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.14%#		
Target Compounds						Qvalue
9) Acenaphthene	13.15	154	2847	~~13.24~~	~~ug/kg#~~	~~12~~
23) Benzo(j)fluoranthene	24.45	252	380	0.80	ug/kg	78

(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160808\16080827.D Vial: 27
Acq On : 9 Aug 2016 3:43 am Operator: DEW
Sample : 1607317-03A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 9 9:04 2016 Quant Results File: PP160801.RES

Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160808\16080828.D Vial: 28
Acq On : 9 Aug 2016 4:24 am Operator: DEW
Sample : 1607317-04A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 9 9:04 2016 Quant Results File: PP160801.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration
DataAcq Meth : PP160801

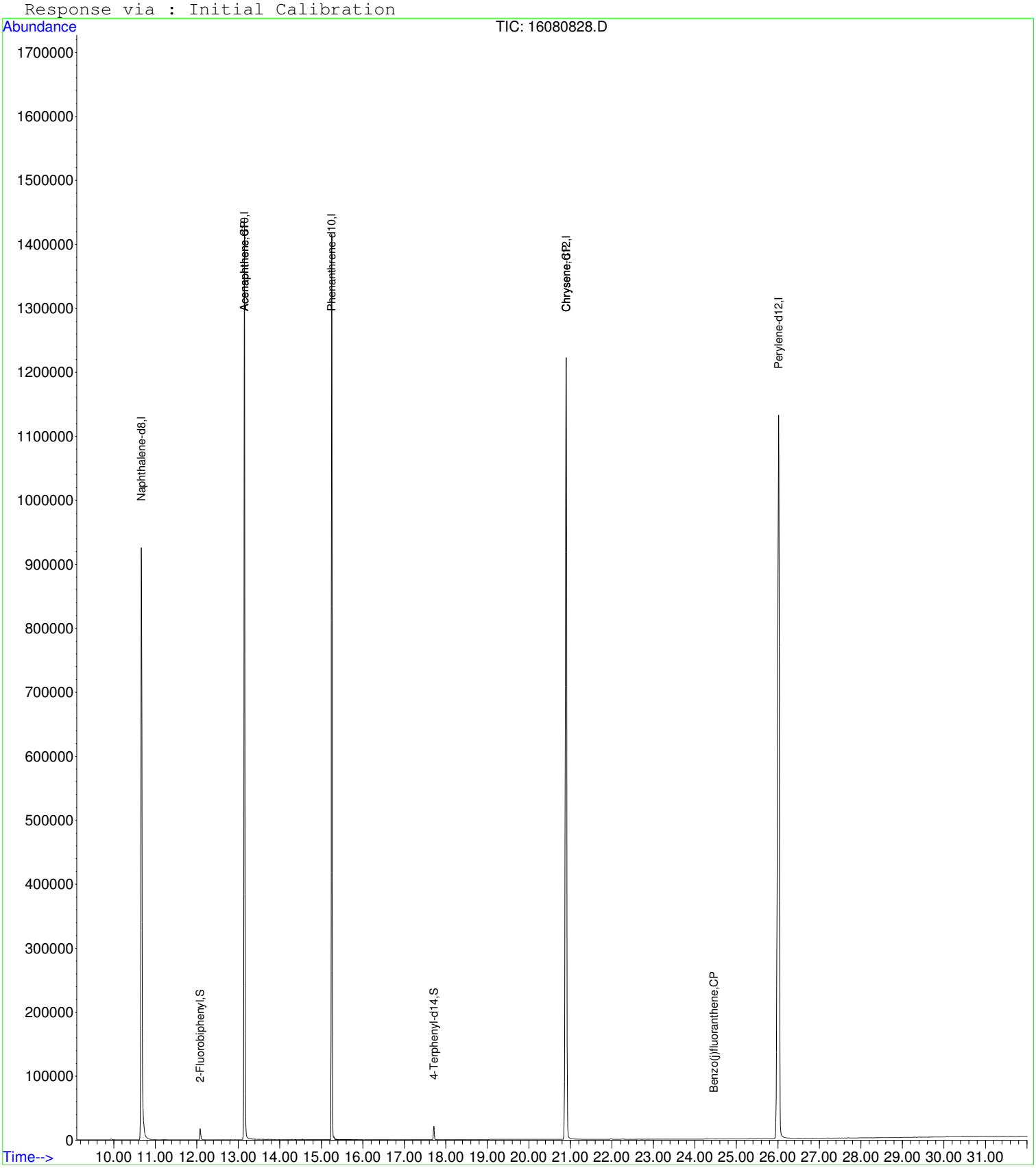
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.66	136	1541269	4000.00	ug/kg	110
5) Acenaphthene-d10	13.15	164	839135	4000.00	ug/kg	140
11) Phenanthrene-d10	15.25	188	1620287	4000.00	ug/kg	102
17) Chrysene-d12	20.90	240	2153099	4000.00	ug/kg	117
20) Perylene-d12	26.02	264	2300854	4000.00	ug/kg	119
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.08	172	20902	71.41	ug/kg	-0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.79%#		
16) 4-Terphenyl-d14	17.71	244	30327	79.31	ug/kg	-0.03
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.98%#		
Target Compounds						Qvalue
9) Acenaphthene	13.15	154	2797	~~13.00~~	~~ug/kg#~~	~~11~~
19) Chrysene	20.90	228	4663	~~9.99~~	~~ug/kg~~	~~69~~
23) Benzo(j)fluoranthene	24.47	252	54	0.12	ug/kg#	1

(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160808\16080828.D Vial: 28
Acq On : 9 Aug 2016 4:24 am Operator: DEW
Sample : 1607317-04A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 9 9:04 2016 Quant Results File: PP160801.RES

Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160808\16080829.D Vial: 29
Acq On : 9 Aug 2016 5:05 am Operator: DEW
Sample : 1607314-03AMS Inst : GC/MS #6
Misc : MS Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 9 9:18 2016 Quant Results File: PP160801.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration
DataAcq Meth : PP160801

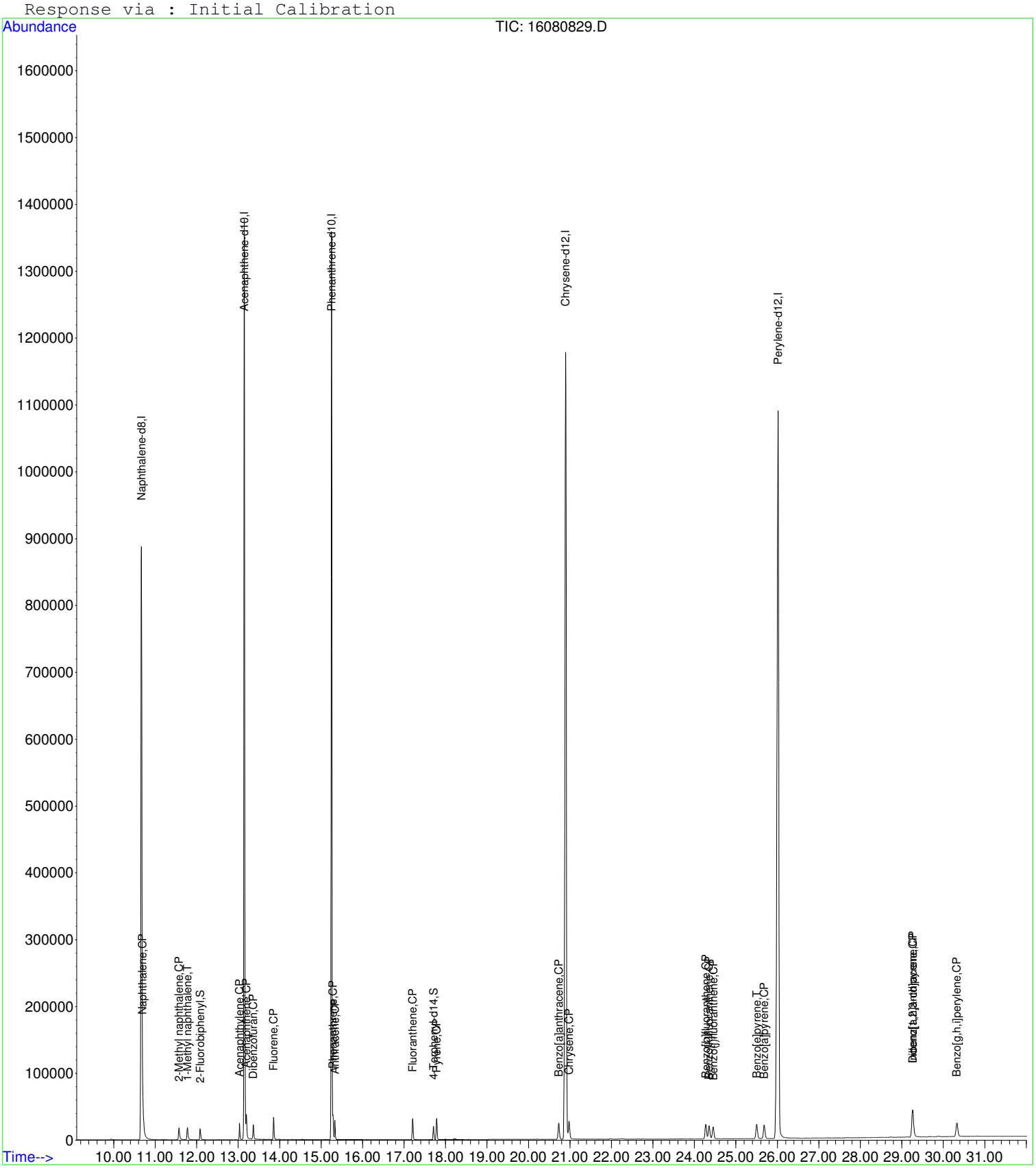
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.67	136	1486020	4000.00	ug/kg	106
5) Acenaphthene-d10	13.15	164	805758	4000.00	ug/kg	134
11) Phenanthrene-d10	15.25	188	1555153	4000.00	ug/kg	98
17) Chrysene-d12	20.89	240	2099049	4000.00	ug/kg	114
20) Perylene-d12	26.02	264	2225562	4000.00	ug/kg	115
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.08	172	19643	69.89	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.75%#		
16) 4-Terphenyl-d14	17.71	244	28091	76.54	ug/kg	-0.03
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.91%#		
Target Compounds						Qvalue
2) Naphthalene	10.70	128	23681	70.04	ug/kg	99
3) 2-Methyl naphthalene	11.57	142	16746	76.40	ug/kg	97
4) 1-Methyl naphthalene	11.77	142	15202	78.30	ug/kg	97
6) Dibenzofuran	13.37	168	23256	71.32	ug/kg	99
8) Acenaphthylene	13.03	152	25157	70.50	ug/kg	100
9) Acenaphthene	13.20	154	15285	73.96	ug/kg	99
10) Fluorene	13.85	166	19160	73.76	ug/kg	100
12) Phenanthrene	15.29	178	28836	78.21	ug/kg	98
13) Anthracene	15.33	178	27119	69.90	ug/kg	100
14) Fluoranthene	17.21	202	36176	82.79	ug/kg	99
15) Pyrene	17.79	202	37263	84.11	ug/kg	98
18) Benzo[a]anthracene	20.73	228	37132	78.48	ug/kg	99
19) Chrysene	20.98	228	37135	81.59	ug/kg	99
21) Benzo[b]fluoranthene	24.27	252	42438	82.60	ug/kg	99
22) Benzo[k]fluoranthene	24.36	252	38595	81.88	ug/kg	98
23) Benzo(j)fluoranthene	24.45	252	37036	81.76	ug/kg	98
24) Benzo[e]pyrene	25.50	252	42673	85.59	ug/kg	98
25) Benzo[a]pyrene	25.68	252	41221	83.04	ug/kg	99
26) Dibenz[a,h]anthracene	29.26	278	39387	81.99	ug/kg	97
27) Indeno[1,2,3-cd]pyrene	29.26	276	50045	87.79	ug/kg	98
28) Benzo[g,h,i]perylene	30.33	276	43281	90.65	ug/kg	97

(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160808\16080829.D Vial: 29
Acq On : 9 Aug 2016 5:05 am Operator: DEW
Sample : 1607314-03AMS Inst : GC/MS #6
Misc : MS Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 9 9:18 2016 Quant Results File: PP160801.RES

Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160808\16080830.D Vial: 30
Acq On : 9 Aug 2016 5:45 am Operator: DEW
Sample : 1607314-03AMSD Inst : GC/MS #6
Misc : MSD Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 9 9:18 2016 Quant Results File: PP160801.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration
DataAcq Meth : PP160801

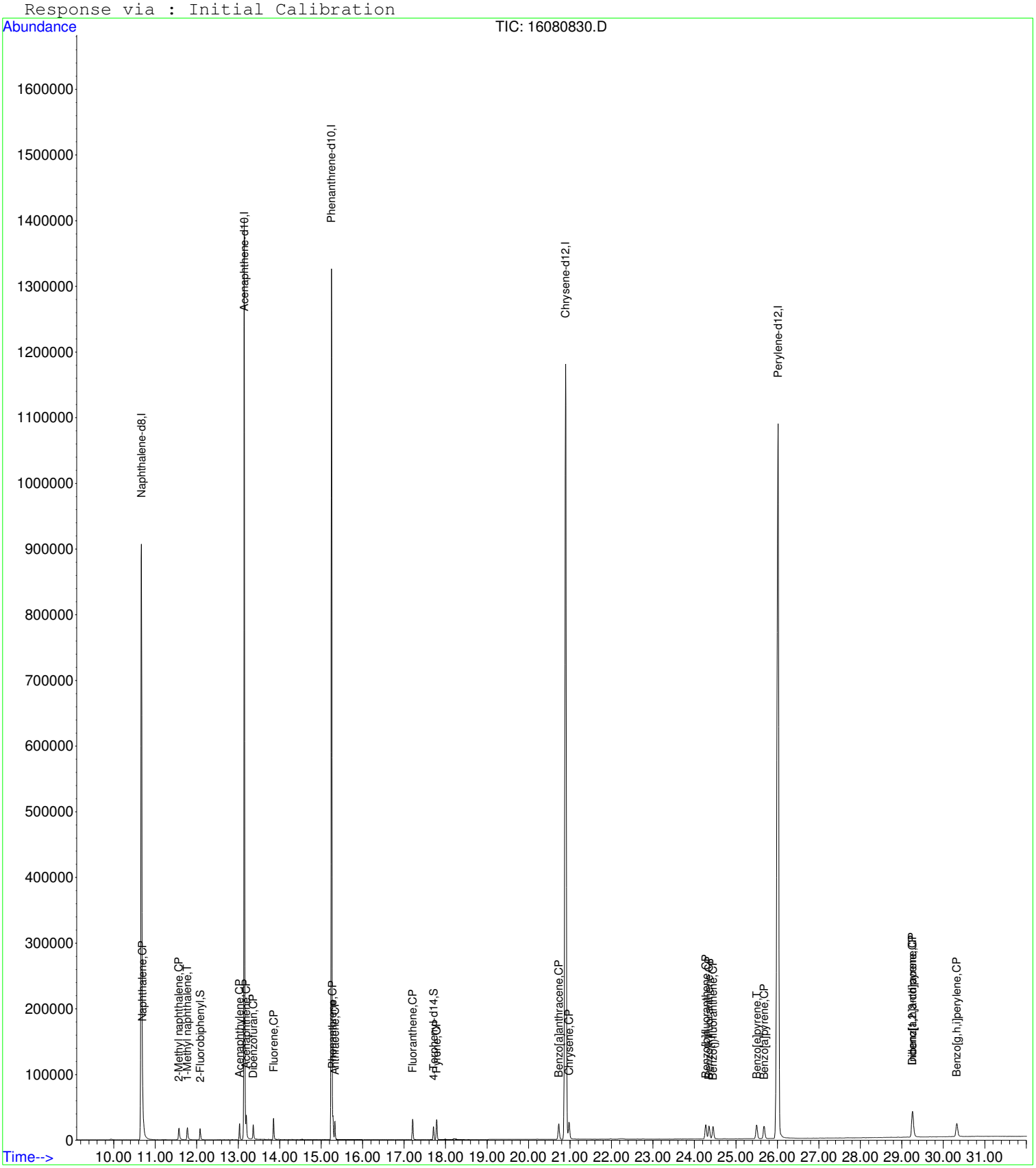
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.67	136	1480781	4000.00	ug/kg	106
5) Acenaphthene-d10	13.15	164	811775	4000.00	ug/kg	135
11) Phenanthrene-d10	15.25	188	1546510	4000.00	ug/kg	97
17) Chrysene-d12	20.89	240	2091666	4000.00	ug/kg	114
20) Perylene-d12	26.02	264	2239320	4000.00	ug/kg	116
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.08	172	20423	72.13	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.80%#		
16) 4-Terphenyl-d14	17.71	244	28329	77.62	ug/kg	-0.03
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.94%#		
Target Compounds						Qvalue
2) Naphthalene	10.70	128	23439	69.57	ug/kg	100
3) 2-Methyl naphthalene	11.57	142	16870	77.24	ug/kg	100
4) 1-Methyl naphthalene	11.77	142	15179	78.46	ug/kg	97
6) Dibenzofuran	13.36	168	23388	71.19	ug/kg	98
8) Acenaphthylene	13.03	152	25155	69.98	ug/kg	99
9) Acenaphthene	13.20	154	15333	73.65	ug/kg	98
10) Fluorene	13.85	166	19222	73.45	ug/kg	100
12) Phenanthrene	15.28	178	27673	75.47	ug/kg	98
13) Anthracene	15.33	178	26661	69.10	ug/kg	99
14) Fluoranthene	17.21	202	34956	80.45	ug/kg	99
15) Pyrene	17.79	202	35453	80.47	ug/kg	99
18) Benzo[a]anthracene	20.73	228	36726	77.90	ug/kg	99
19) Chrysene	20.98	228	36013	79.40	ug/kg	99
21) Benzo[b]fluoranthene	24.27	252	42881	82.95	ug/kg	99
22) Benzo[k]fluoranthene	24.35	252	38153	80.45	ug/kg	99
23) Benzo(j)fluoranthene	24.45	252	36524	80.14	ug/kg	98
24) Benzo[e]pyrene	25.50	252	41839	83.40	ug/kg	99
25) Benzo[a]pyrene	25.68	252	39986	80.05	ug/kg	99
26) Dibenz[a,h]anthracene	29.26	278	39112	80.92	ug/kg	98
27) Indeno[1,2,3-cd]pyrene	29.26	276	49767	86.76	ug/kg	99
28) Benzo[g,h,i]perylene	30.33	276	42887	89.27	ug/kg	96

(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160808\16080830.D Vial: 30
Acq On : 9 Aug 2016 5:45 am Operator: DEW
Sample : 1607314-03AMSD Inst : GC/MS #6
Misc : MSD Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 9 9:18 2016 Quant Results File: PP160801.RES

Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160808\16080831.D Vial: 31
Acq On : 9 Aug 2016 6:25 am Operator: DEW
Sample : CCV1-160808 Inst : GC/MS #6
Misc : CCV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 9 9:18 2016 Quant Results File: PP160801.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration
DataAcq Meth : PP160801

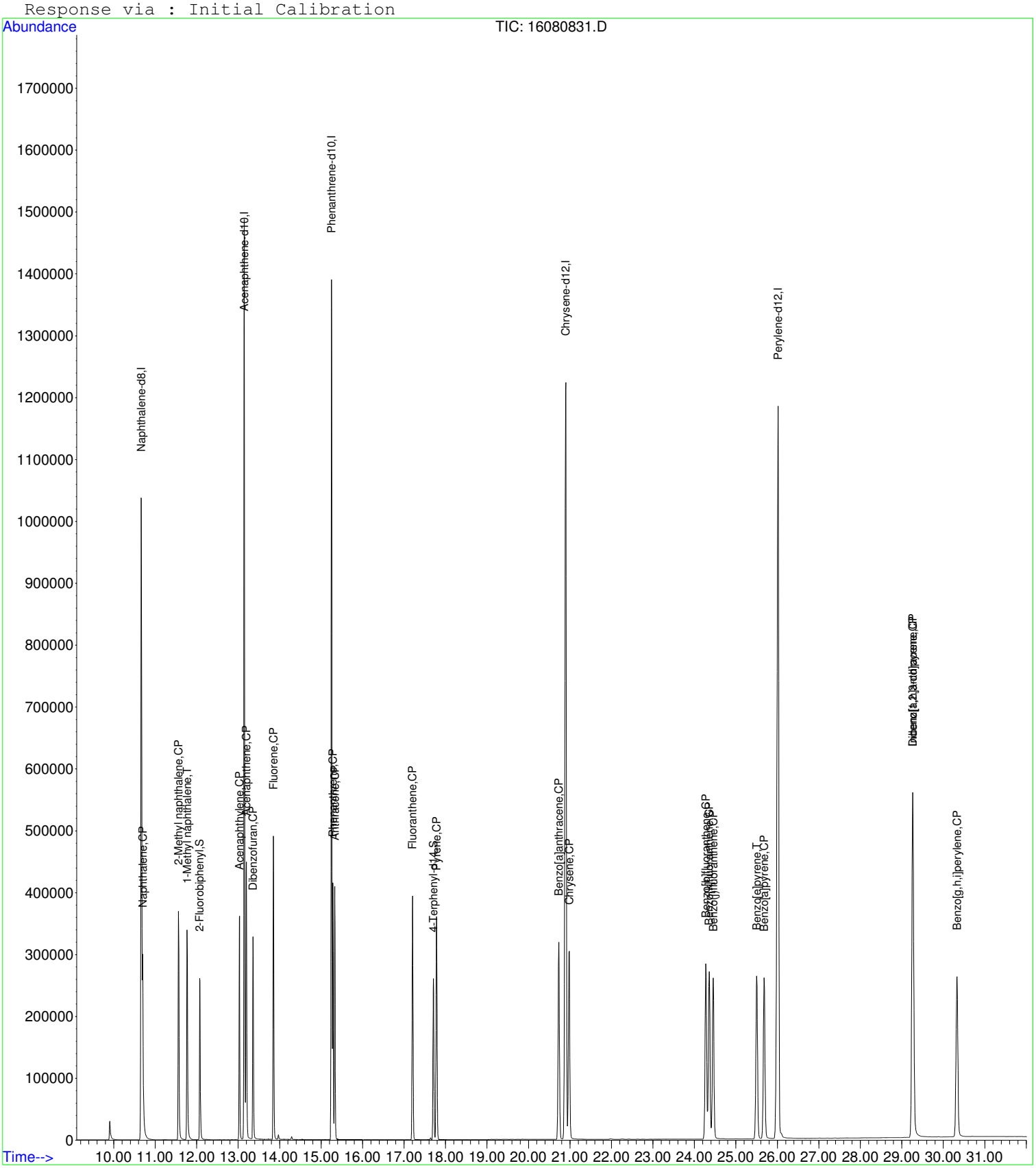
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.66	136	1560538	4000.00	ug/kg	111
5) Acenaphthene-d10	13.15	164	858725	4000.00	ug/kg	143
11) Phenanthrene-d10	15.25	188	1638165	4000.00	ug/kg	103
17) Chrysene-d12	20.90	240	2214392	4000.00	ug/kg	121
20) Perylene-d12	26.02	264	2393523	4000.00	ug/kg	124
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.07	172	270209	902.10	ug/kg	-0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery = 22.55%#			
16) 4-Terphenyl-d14	17.71	244	362494	937.67	ug/kg	-0.03
Spiked Amount 4000.000	Range 40 - 140		Recovery = 23.44%#			
Target Compounds						Qvalue
2) Naphthalene	10.70	128	330333	930.36	ug/kg	100
3) 2-Methyl naphthalene	11.56	142	239480	1040.41	ug/kg	97
4) 1-Methyl naphthalene	11.77	142	216904	1063.86	ug/kg	97
6) Dibenzofuran	13.36	168	317649	914.06	ug/kg	100
8) Acenaphthylene	13.03	152	365898	962.19	ug/kg	99
9) Acenaphthene	13.20	154	212660	965.58	ug/kg	98
10) Fluorene	13.85	166	266062	961.04	ug/kg	100
12) Phenanthrene	15.28	178	366075	942.57	ug/kg	100
13) Anthracene	15.33	178	375943	919.92	ug/kg	100
14) Fluoranthene	17.20	202	419584	911.61	ug/kg	99
15) Pyrene	17.78	202	426112	913.04	ug/kg	100
18) Benzo[a]anthracene	20.73	228	487213	976.16	ug/kg	99
19) Chrysene	20.98	228	460891	959.87	ug/kg	100
21) Benzo[b]fluoranthene	24.27	252	560183	1013.80	ug/kg	100
22) Benzo[k]fluoranthene	24.36	252	511358	1008.76	ug/kg	100
23) Benzo(j)fluoranthene	24.45	252	485467	996.54	ug/kg	99
24) Benzo[e]pyrene	25.50	252	528135	984.92	ug/kg	100
25) Benzo[a]pyrene	25.68	252	524464	982.35	ug/kg	99
26) Dibenz[a,h]anthracene	29.26	278	548412	1061.49	ug/kg	99
27) Indeno[1,2,3-cd]pyrene	29.27	276	642748	1048.37	ug/kg	98
28) Benzo[g,h,i]perylene	30.33	276	538589	1048.86	ug/kg	98

(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160808\16080831.D Vial: 31
Acq On : 9 Aug 2016 6:25 am Operator: DEW
Sample : CCV1-160808 Inst : GC/MS #6
Misc : CCV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 9 9:18 2016 Quant Results File: PP160801.RES

Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration



GCMS6_160809A
For

DHL Work Order
1607317

Lab Data Review Check List
EPA Method 8270 / 625 - PAH: Polynuclear Aromatic Hydrocarbons

SEE RUN LOG FOR ALL PROJECT AND BATCH NUMBERS AND MATRICES	Run ID: GCMS6_160809A
Batch Number(s): See Run Log. Matrix: See Run Log.	SOP: ORGANICS-PAH-01

Review Item	Yes	No	N/A	2nd Level Review
Data Folder Contents 1. Is the Prep Batch Report included? Check and record the following: ***Prep Start/End Dates, Sample Amounts, Bottle #s***	X			x
2. Are the reagents and spikes listed on the Prep Batch Report current with a valid expiration date? ***All standard/QC sample preparations shall be documented in LIMS***	X			
3. Is the Run Log and instrument sequence included? ***Check the Test Code, Sample Type, Batch ID, and Analysis Date/Time***	X			
4. Is the System Verification - Tune Report included? ***Date/Tme of Tune starts 12-hour analysis window***	X			
5. Is the Evaluate Continuing Calibration Report included?	X			

Daily Demonstration of Performance

QC items that do not meet method/SOP/project requirements will be described on the run log. All variances that impact data quality will be described in the Variance/Comment Section on page 2.

Review Item	Frequency	Limits	Pass	Fail (List Batch/Sample) **See Run Log**	2nd Level Review
Tune	Before ICAL Every 12 hours	See Tune Eval Report	X		x
Resolution Check - Benzo(b) and Benzo(k)phenanthrene	Before ICAL Every 12 hours	Benzo(b) and Benzo(k) Valley > 50%	X		
Initial Calibration Curve (ICAL) (minimum: 5 Standards)	Prior to samples and when ICV fails	Avg. RF - %RSD ≤ 15% Curve (COD) - R^2 ≥ 0.990	X		
SSCV - (Second Source)	After calibration (ICAL)	80-120%	X		
ICV - (Daily Initial Cal Verification)	Every 12 hours	ISTDs Area% (50-200%) Surrogates %R (See LIMS) Analytes %R (80-120%)	X		

Review Item	Frequency	Limits	Pass	Fail	N/A	Review
Method Blank (MB) System Blank (SYS Blank)	Every Batch (MB) Daily (SYS BL)	< MDL / <½ RL (DoD) or <1/10 the sample/reg limit	X			x
Lab Control Sample (LCS)	Every Batch	See LIMS	X			
Lab Control Sample Dup (LCSD)	Insufficient sample Sample Matrix	See LIMS			X	
LCSD - RPD	Every LCS/LCSD	≤ 30 (Aq/Soil/DoD)			X	
Field Samples	Up to 20 per prep batch	ISTDs Area% (50-200%) Surrogates %R (See LIMS) RRT ± 0.06 RRT Standard Q value > 70 - check for #	X			
Matrix Spike (MS)	Every Batch/20 samples	See LIMS	X			
Matrix Spike Duplicate (MSD) (MSD is N/A for Method 625)	Every Prep Batch except Method 625	See LIMS	X			
MSD - RPD (MSD is N/A for Method 625)	Every MS/MSD except Method 625	≤ 30 (Aq/Soil/DoD)	X			

Lab Data Review Check List
EPA Method 8270 / 625 - PAH: Polynuclear Aromatic Hydrocarbons

Review Item	Criteria	Yes	No	N/A	2nd Level Review
Sample Analysis	7 days (Aq) - extraction			X	
1. Are all sample hold times met?	14 days (Soil) - extraction	X			
	40 days analysis	X			
2. Are all manual integrations signed (Before & After) and printouts included ? Put in LIMS Comment Section ***Include MI form for DoD work***	Before & After - signed Comment Section in LIMS MI Form - DoD only			X	x
3. Are all samples with concentrations > the highest standard used for calibration diluted and reanalyzed?	> highest standard			X	
Review Item #3 is N/A ONLY if all sample results are within Calibration range or NO if dilution is in different folder					
4. Is mass spectra reviewed/verified if Q value is <70 and/or # flag for results >MDL?	Q value <70 - All hits	X			x
5. Are ALL reported analytes > MDL (+ J flags) circled by the analyst?		X	**Return to analyst if NO**		
VARIANCE REPORT					
QC items that do not meet method/SOP/project requirements will be described on the run log. All variances that impact data quality will be described in this section.					
NON-CONFORMANCES / VARIANCE	All deviations from the method and SOP that affect data quality			X	x
1. Are all non-conformances included and noted?					
2. Are all corrective actions included?				X	
3. Does the variance require approval by the Technical Director/General Manager/QA Manager?				X	

Approved by: Date:

Description and Corrective Actions of QC items that do not meet method/SOP/project requirements:

****INCLUDE VARIANCE ITEM / REASON / CORRECTIVE ACTION / IMPACT ON DATA****

VARIANCE ITEM	REASON	CORRECTIVE ACTION
___ Hold Time exceeded (7D/14D-Ext/40D-Analysis)	___ Sample Received out of HT	___ Reanalyze QC to confirm
___ ICV out of control (±20%)	___ Carryover from previous run	___ Recalibrate
___ MB/SYS BL out of control (> MDL / >½ RL)	___ Cross contamination	___ Reprep/Reanalyze sample
___ LCS ___LCSD out of control (See LIMS)	___ Lab Artifact	___ Reprep/Reanalyze Batch
___ RPD out of control for LCS/LCSD (>30)	___ Prep Spike error (describe)	___ Reanalyze Batch/Sample/QC
___ MS ___ MSD out of control (See LIMS)	___ High Levels of target analytes	___ Verify H2O/reagents are clean
___ RPD out of control for MS/MSD (>30)	___ High Levels of non-targets	___ Reanalyze sample to confirm
___ Internal Standard(s) out of control	___ Insufficient sample for QC	___ Sample results ND w/ dilution
___ Multiple Surrogates out of control	___ Prep Error	___ Client notified and approved
___ No MS/MSD prepared - LCS/LCSD used instead	___ Analytical Error	___ Flag data / Case narrative
___ Missing QC (other than MS/MSD)	___ Client Request	___ Instrument Maintenance
___ QC sample(s) was mis-spiked	___ Other (describe below)	___ Accept data
___ Other (describe below)		___ Cannot reanalyze (HT out/Lack of Sample)

General Comments and Impact on Data: **See Run Log.**

Analyst: Don Winston Date: 8/10/2016

Second-Level Review: Janice Whitt Date: 8/18/2016

REVIEWED BY
By Janice Whitt at 10:53:33 AM, 8/18/2016

DHL Analytical, Inc.

Run ID: GCMS6_160809A **Run No.:** 87515

Analytical Run Date: 8/9/2016 **InstrumentID:** GCMS6

Analyst: Don Winston **Column:** Agilent (J&W) DB-EUPAH (20m x 0.18mmI

Calibration ID: 680 **Column ID:** 0.18mm

Column Length: 20m

Cal Comments: PP160801.M

SampID	DF	TestCode	SampType	Batch ID	Analysis Date/Time	Q	Comments
DFTPP-160809	1	PAH_LL_SDOD1	TUNE	R87515	8/9/2016 8:15:00 AM		All samples in this batch run at 10x - detection limit is sufficient and is approved by project managers.
ICV-160809	1	PAH_LL_SDOD1	ICV	R87515	8/9/2016 8:54:00 AM		
LCS-76609	1	PAH_LL_SDOD1	LCS	76609	8/9/2016 9:35:00 AM		
MB-76609	1	PAH_LL_SDOD1	MBLK	76609	8/9/2016 10:15:00 AM		
1607317-05A	10	PAH_LL_SDOD1	SAMP	76609	8/9/2016 10:57:00 AM		
1607317-06A	10	PAH_LL_SDOD1	SAMP	76609	8/9/2016 11:37:00 AM		
1607317-07A	10	PAH_LL_SDOD1	SAMP	76609	8/9/2016 12:18:00 PM		
1607317-08A	10	PAH_LL_SDOD1	SAMP	76609	8/9/2016 12:59:00 PM		
1607317-09A	10	PAH_LL_SDOD1	SAMP	76609	8/9/2016 1:40:00 PM		
1607317-10A	10	PAH_LL_SDOD1	SAMP	76609	8/9/2016 2:22:00 PM		
1607317-11A	10	PAH_LL_SDOD1	SAMP	76609	8/9/2016 3:03:00 PM		
1607317-12A	10	PAH_LL_SDOD1	SAMP	76609	8/9/2016 3:45:00 PM		
1607317-14A	10	PAH_LL_SDOD1	SAMP	76609	8/9/2016 4:26:00 PM		
1607317-15A	10	PAH_LL_SDOD1	SAMP	76609	8/9/2016 5:07:00 PM		
1607317-16A	10	PAH_LL_SDOD1	SAMP	76609	8/9/2016 5:48:00 PM		
1607317-17A	10	PAH_LL_SDOD1	SAMP	76609	8/9/2016 6:28:00 PM		
DFTPP2-160809	1	PAH_LL_SDOD1	TUNE	R87515	8/9/2016 7:09:00 PM		
ICV2-160809	1	PAH_LL_SDOD1	ICV	R87515	8/9/2016 7:49:00 PM		
SB-160809	1	PAH_LL_SDOD1	SBLK	76609	8/9/2016 9:09:00 PM		
1607317-18A	10	PAH_LL_SDOD1	SAMP	76609	8/9/2016 9:49:00 PM		
1607317-19A	10	PAH_LL_SDOD1	SAMP	76609	8/9/2016 10:29:00 PM		
1607317-20A	10	PAH_LL_SDOD1	SAMP	76609	8/9/2016 11:09:00 PM		
1607317-21A	10	PAH_LL_SDOD1	SAMP	76609	8/9/2016 11:48:00 PM		
1607317-22A	10	PAH_LL_SDOD1	SAMP	76609	8/10/2016 12:28:00 AM		
1607317-23A	10	PAH_LL_SDOD1	SAMP	76609	8/10/2016 1:08:00 AM		
1607317-24A	10	PAH_LL_SDOD1	SAMP	76609	8/10/2016 1:49:00 AM		
1607317-25A	10	PAH_LL_SDOD1	SAMP	76609	8/10/2016 2:29:00 AM		
1607317-09AMS	10	PAH_LL_SDOD1	MS	76609	8/10/2016 3:09:00 AM		

Std ID	Std Name	Type	Exp. Date
DFTPP160509	2.5 PPM 525 TUNE STD.	TUNE	05/07/2017
PAHCCV160806	1 PPM PAH CCV STANDARD	CCV	11/04/2016
PAHICV160806	2 PPM PAH ICV	ICV	11/04/2016
SVI160510-3	4000 PPM INTERNAL STANDAR	ALL	07/30/2017

DHL Analytical, Inc.

Run ID: GCMS6_160809A **Run No.:** 87515

1607317-09AMSD	10	PAH_LL_SDOD1	MSD	76609	8/10/2016 3:50:00 AM		
CCV1-160809	1	PAH_LL_SDOD1	CCV	R87515	8/10/2016 4:30:00 AM		

Std ID	Std Name	Type	Exp. Date
DFTPP160509	2.5 PPM 525 TUNE STD.	TUNE	05/07/2017
PAHCCV160806	1 PPM PAH CCV STANDARD	CCV	11/04/2016
PAHICV160806	2 PPM PAH ICV	ICV	11/04/2016
SVI160510-3	4000 PPM INTERNAL STANDAR	ALL	07/30/2017

Sequence Name: C:\HPCHEM\1\SEQUENCE\160809.S
Comment:
Operator: DEW
Data Path: C:\HPCHEM\1\DATA\160809\
Pre-Seq Cmd:
Post-Seq Cmd:

Method Sections To Run
(X) Full Method
( ) Reprocessing Only

On A Barcode Mismatch
(X) Inject Anyway
( ) Don't Inject

Line	Type	Vial	DataFile	Method	Sample Name
1	Sample	1	16080901	DFTPPPAH	DFTPP-160809
2	Sample	2	16080902	PP160801	ICV-160809
3	Sample	3	16080903	PP160801	LCS-76609
4	Sample	4	16080904	PP160801	MB-76609
5	Sample	5	16080905	PP160801	1607317-05A
6	Sample	6	16080906	PP160801	1607317-06A
7	Sample	7	16080907	PP160801	1607317-07A
8	Sample	8	16080908	PP160801	1607317-08A
9	Sample	9	16080909	PP160801	1607317-09A
10	Sample	10	16080910	PP160801	1607317-10A
11	Sample	11	16080911	PP160801	1607317-11A
12	Sample	12	16080912	PP160801	1607317-12A
13	Sample	13	16080913	PP160801	1607317-14A
14	Sample	14	16080914	PP160801	1607317-15A
15	Sample	15	16080915	PP160801	1607317-16A
16	Sample	16	16080916	PP160801	1607317-17A
17	Sample	17	16080917	DFTPPPAH	DFTPP2-160809
18	Sample	18	16080918	PP160801	ICV2-160809
19	Sample	19	16080919	PP160801	SBLK
20	Sample	20	16080920	PP160801	SB-160809
21	Sample	21	16080921	PP160801	1607317-18A
22	Sample	22	16080922	PP160801	1607317-19A
23	Sample	23	16080923	PP160801	1607317-20A
24	Sample	24	16080924	PP160801	1607317-21A
25	Sample	25	16080925	PP160801	1607317-22A
26	Sample	26	16080926	PP160801	1607317-23A
27	Sample	27	16080927	PP160801	1607317-24A
28	Sample	28	16080928	PP160801	1607317-25A
29	Sample	29	16080929	PP160801	1607317-09AMS
30	Sample	30	16080930	PP160801	1607317-09AMSD
31	Sample	31	16080931	PP160801	CCV1-160809

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **8/2/2016 9:18:01 AM**
Digestion:
Prep End Date: **8/2/2016 12:00:00 PM**

Prep Batch **76609** Prep Code: **3550_PAHDOD** Technician: **Duston Bezner**

Prep Factor Units: **mL/g**

Equipment List

Turbo-Vap # 1,2,3
Balance # 25
Sonicators # 1,2,3,4

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607317-05A	Soil		10.59	10	0.944	1 of 1	
1607317-06A	Soil		10.05	10	0.995	1 of 1	
1607317-07A	Soil		10.27	10	0.974	1 of 1	
1607317-08A	Soil		10.49	10	0.953	1 of 1	
1607317-09A	Soil		10.27	10	0.974	of 3	
1607317-09AMS	Soil		10.48	10	0.954	of	
1607317-09AMSD	Soil		10.28	10	0.973	of	
1607317-10A	Soil		10.29	10	0.972	1 of 1	
1607317-11A	Soil		10.18	10	0.982	1 of 1	
1607317-12A	Soil		10.01	10	0.999	1 of 1	
1607317-14A	Soil		10.21	10	0.979	1 of 1	
1607317-15A	Soil		10.29	10	0.972	1 of 1	
1607317-16A	Soil		10.08	10	0.992	1 of 1	
1607317-17A	Soil		10.03	10	0.997	1 of 1	
1607317-18A	Soil		10.21	10	0.979	1 of 1	
1607317-19A	Soil		10.2	10	0.980	1 of 1	
1607317-20A	Soil		10.08	10	0.992	1 of 1	
1607317-21A	Soil		10.25	10	0.976	1 of 1	
1607317-22A	Soil		10.21	10	0.979	1 of 1	
1607317-23A	Soil		10.02	10	0.998	1 of 1	
1607317-24A	Soil		10.04	10	0.996	1 of 1	
1607317-25A	Soil		10.03	10	0.997	1 of 1	
LCS-76609	Soil		10	10	1.000	of	
MB-76609	Soil		10	10	1.000	of	

Number	Reagent Name	Amt	Units	Exp. Da
10394	Purified Sodium Sulfate	10	g	05/23/2026
10419	Methylene Chloride	8	ml	05/31/2026
10536	Whatman 41 Filter	1	filter	07/11/2026
10591	1:1 MeCl2/Acetone	120	ml	07/26/2026

Spk ID	Spike Name	SampType	Amt (mL or g)	Exp. Date
PAHPREP160727	200 PPM PAH Spike Mix	LCS/MS/MSD	0.05	10/25/2016
SVPREP160727	40 PPM Surrogate Standard	ALL	0.25	10/25/2016

REVIEWED BY
By Janice Whitt at 10:35:12 AM, 8/18/2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **8/2/2016 9:18:01 AM**
Digestion:
Prep End Date: 8/2/16 12:00PM

Prep Batch **76609** Prep Code: **3550_PAHDOD** Technician: **Duston Bezner**

Prep Factor Units: **mL/g**

Equipment List
Turbo-Vap # 1,2,3
Balance # 25
Sonicators # 1,2,3,4

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607317-05A	Soil		10.59	10	1.000	1 of 1	
1607317-06A	Soil		10.05	10	1.000	1 of 1	
1607317-07A	Soil		10.27	10	1.000	1 of 1	
1607317-08A	Soil		10.49	10	1.000	1 of 1	
1607317-09A	Soil		10.27	10	1.000	1 of 3	
1607317-09AMS	Soil		10.40	10	1.000	1 of ↓	
1607317-09AMSD	Soil		10.28	10	1.000	1 of	
1607317-10A	Soil		10.29	10	1.000	1 of 1	
1607317-11A	Soil		10.18	10	1.000	1 of 1	
1607317-12A	Soil		10.01	10	1.000	1 of 1	
1607317-14A	Soil		10.21	10	1.000	1 of 1	
1607317-15A	Soil		10.29	10	1.000	1 of 1	
1607317-16A	Soil		10.08	10	1.000	1 of 1	
1607317-17A	Soil		10.03	10	1.000	1 of 1	
1607317-18A	Soil		10.21	10	1.000	1 of 1	
1607317-19A	Soil		10.20	10	1.000	1 of 1	
1607317-20A	Soil		10.08	10	1.000	1 of 1	
1607317-21A	Soil		10.25	10	1.000	1 of 1	
1607317-22A	Soil		10.21	10	1.000	1 of 1	
1607317-23A	Soil		10.02	10	1.000	1 of 1	Used SVPREP160802 ↓
1607317-24A	Soil		10.04	10	1.000	1 of 1	
1607317-25A	Soil		10.03	10	1.000	1 of 1	
LCS-76609	Soil		10	10	1.000	of	
MB-76609	Soil		10	10	1.000	of	

Number	Reagent Name	Amt	Units	Exp. Da
10394	Purified Sodium Sulfate	10	g	05/23/2026
10419	Methylene Chloride	8	ml	05/31/2026
10536	Whatman 41 Filter	1	filter	07/11/2026
10591	1:1 MeCl2/Acetone	120	ml	07/26/2026

Spk ID	Spike Name	SampType	Amt (mL or g)	Exp. Date
PAHPREP160727	200 PPM PAH Spike Mix	LCS/MS/MSD	0.05	10/25/2016
SVPREP160727	40 PPM Surrogate Standard	ALL	0.25	10/25/2016

REVIEWED BY
By Janice Whitt at 10:35:09 AM, 8/18/2016

8/2/16 8/2/16

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **7/28/2016 4:31:01 PM**
Digestion: **Start: 7/28/2016 4:45:00 PM / Stop: 8/1/2016 10:00:00 AM**
Prep End Date: **8/2/2016 10:00:00 AM**

Prep Batch **76551** Prep Code: **ISM2MM_PREP** Technician: **Jennifer Barker**

Prep Factor Units: **mL/**

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607317-01A	Soil		0	0	#Num!	1 of 1	
SS							
1607317-02A	Soil		0	0	#Num!	1 of 1	
SS							
1607317-03A	Soil		0	0	#Num!	1 of 1	
Sieve only hard clay							
1607317-04A	Soil		0	0	#Num!	1 of 1	
Sieve only hard clay							
1607317-05A	Soil		0	0	#Num!	1 of 1	
SS							
1607317-06A	Soil		0	0	#Num!	1 of 1	
SS							
1607317-07A	Soil		0	0	#Num!	1 of 1	
Sieve only hard clay							
1607317-08A	Soil		0	0	#Num!	1 of 1	
Sieve only hard clay							
1607317-09A	Soil		0	0	#Num!	of 3	
SS MS/MSD							
1607317-10A	Soil		0	0	#Num!	1 of 1	
SS							
1607317-11A	Soil		0	0	#Num!	1 of 1	
Sieve only hard clay							
1607317-12A	Soil		0	0	#Num!	1 of 1	
Sieve only hard clay							
1607317-14A	Soil		0	0	#Num!	1 of 1	
SS							

REVIEWED BY
By Janice Whitt at 10:35:15 AM, 8/18/2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **7/28/2016 4:31:01 PM**
Digestion: **Start: 7/28/2016 4:45:00 PM / Stop: 8/1/2016 10:00:00 AM**
Prep End Date: **8/2/2016 10:00:00 AM**

Prep Batch **76551** Prep Code: **ISM2MM_PREP** Technician: **Jennifer Barker**

Prep Factor Units: **mL/**

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607317-15A SS	Soil		0	0	#Num!	1 of 1	
1607317-16A SS	Soil		0	0	#Num!	1 of 1	
1607317-17A SS	Soil		0	0	#Num!	1 of 1	
1607317-18A SS	Soil		0	0	#Num!	1 of 1	
1607317-19A SS	Soil		0	0	#Num!	1 of 1	
1607317-20A SS	Soil		0	0	#Num!	1 of 1	
1607317-21A SS	Soil		0	0	#Num!	1 of 1	
1607317-22A SS	Soil		0	0	#Num!	1 of 1	
1607317-23A SS	Soil		0	0	#Num!	1 of 1	
1607317-24A SS	Soil		0	0	#Num!	1 of 1	
1607317-25A SS	Soil		0	0	#Num!	1 of 1	
1607317-27A SS MS/MSD	Soil		0	0	#Num!	of 3	
1607317-28A SS	Soil		0	0	#Num!	1 of 1	

REVIEWED BY
By Janice Whitt at 10:35:17 AM, 8/18/2016

Prep Start Date: **7/28/2016 4:31:01 PM**
Digestion: **Start: 7/28/2016 4:45:00 PM / Stop: 8/1/2016 10:00:00 AM**
Prep End Date: **8/2/2016 10:00:00 AM**

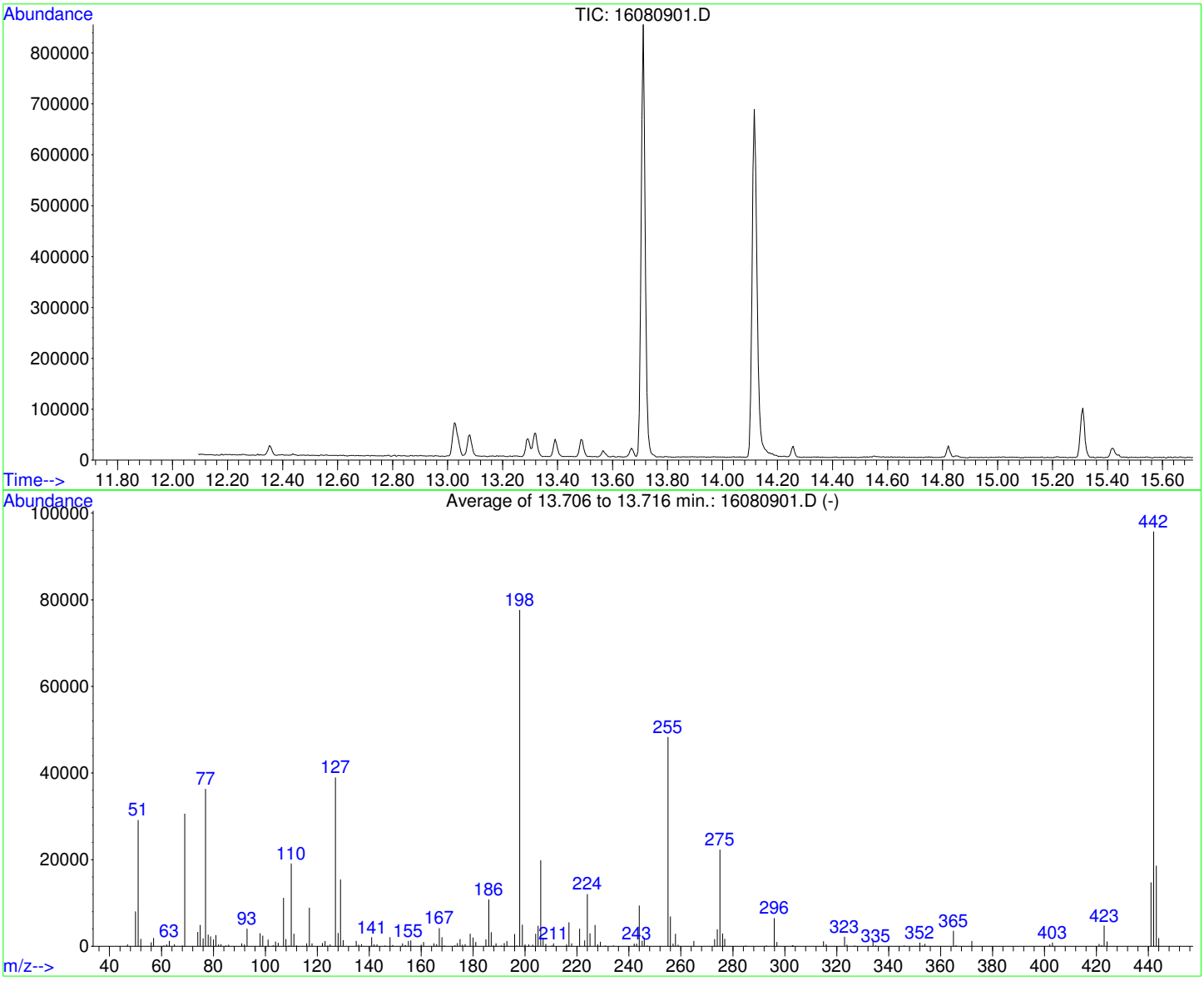
Prep Batch **76551** Prep Code: **ISM2MM_PREP** Technician: **Jennifer Barker**

Prep Factor Units: **mL/**

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607317-29A	Soil		0	0	#Num!	1 of 1	
SS							
1607317-30A	Soil		0	0	#Num!	1 of 1	
Sieve only hard clay							
1607317-31A	Soil		0	0	#Num!	1 of 1	
SS							
1607317-32A	Soil		0	0	#Num!	1 of 1	
SS							
1607317-33A	Soil		0	0	#Num!	1 of 1	
SS							
1607317-34A	Soil		0	0	#Num!	1 of 1	
Sieve only hard clay							
1607317-35A	Soil		0	0	#Num!	1 of 1	
SS							
1607317-36A	Soil		0	0	#Num!	1 of 1	
SS							
1607317-37A	Soil		0	0	#Num!	1 of 1	
SS							
1607317-38A	Soil		0	0	#Num!	1 of 1	
Sieve only hard clay							

REVIEWED BY
By Janice Whitt at 10:35:19 AM, 8/18/2016

Data File : C:\HPCHEM\1\DATA\160809\16080901.D Vial: 1
Acq On : 9 Aug 2016 8:15 am Operator: DEW
Sample : DFTPP-160809 Inst : GC/MS #6
Misc : TUNE Multiplr: 1.00
MS Integration Params: RTEINT.P
Method : C:\HPCHEM\1\METHODS\DFTPPPAH.M (RTE Integrator)
Title : PAH Calibration

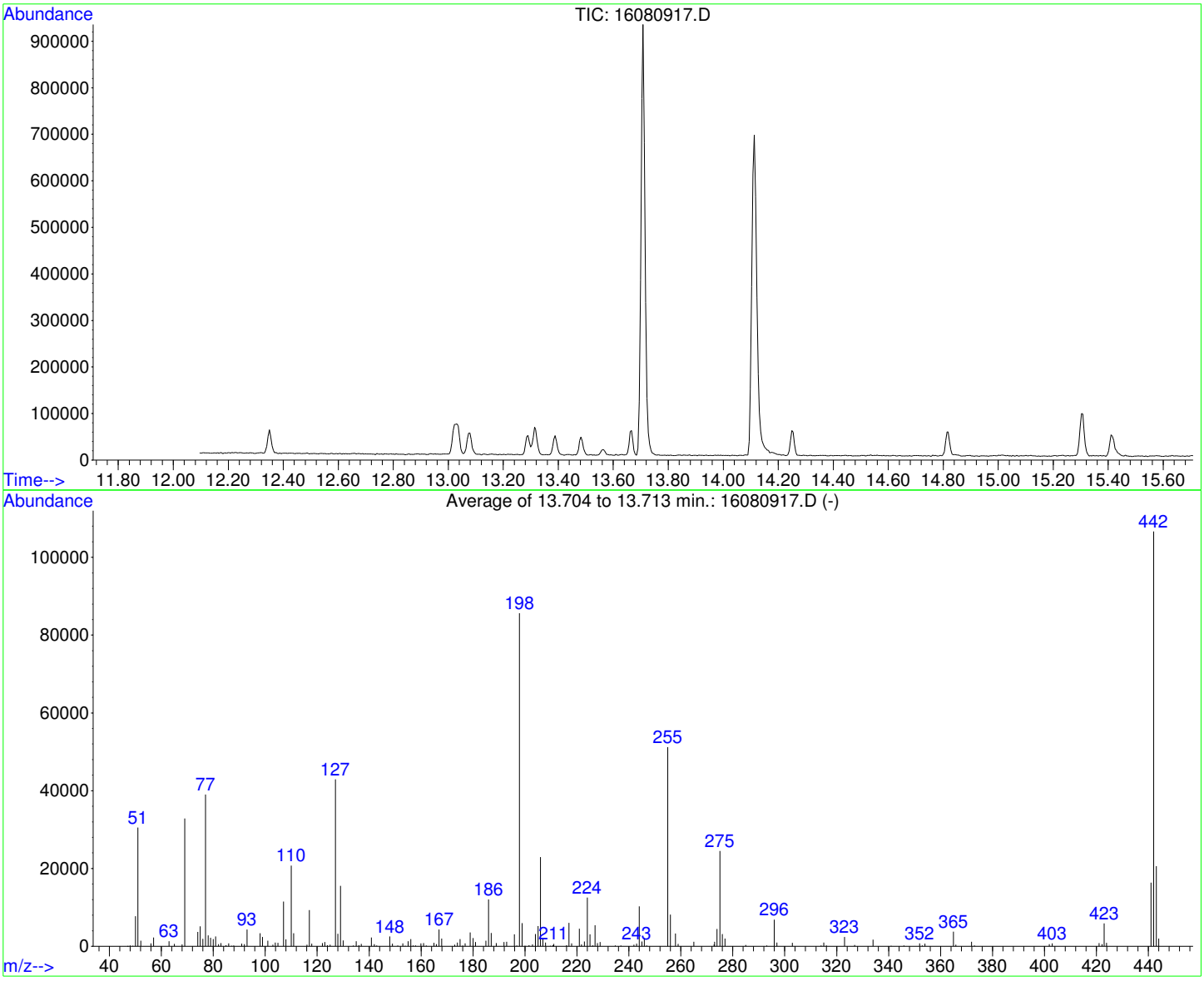


AutoFind: Scans 344, 345, 346; Background Corrected with Scan 338

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	10	80	37.5	29153	PASS
68	69	0.00	2	0.7	206	PASS
69	198	0.00	100	39.4	30635	PASS
70	69	0.00	2	0.0	0	PASS
127	198	10	80	50.2	38992	PASS
197	198	0.00	2	0.3	198	PASS
198	198	100	100	100.0	77661	PASS
199	198	5	9	6.4	4963	PASS
275	198	10	60	28.7	22312	PASS
365	198	1	200	4.6	3597	PASS
441	442	0.01	24	15.4	14767	PASS
442	198	50	400	123.3	95771	PASS
443	442	15	24	19.5	18656	PASS

REVIEWED BY
By Janice Whitt at 10:35:25 AM, 8/18/2016

Data File : C:\HPCHEM\1\DATA\160809\16080917.D Vial: 17
Acq On : 9 Aug 2016 7:09 pm Operator: DEW
Sample : DFTPP2-160809 Inst : GC/MS #6
Misc : TUNE Multiplr: 1.00
MS Integration Params: RTEINT.P
Method : C:\HPCHEM\1\METHODS\DFTPPPAH.M (RTE Integrator)
Title : PAH Calibration



AutoFind: Scans 343, 344, 345; Background Corrected with Scan 337

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	10	80	35.6	30528	PASS
68	69	0.00	2	1.4	476	PASS
69	198	0.00	100	38.3	32837	PASS
70	69	0.00	2	0.0	0	PASS
127	198	10	80	50.2	42955	PASS
197	198	0.00	2	0.3	220	PASS
198	198	100	100	100.0	85653	PASS
199	198	5	9	7.0	5994	PASS
275	198	10	60	28.6	24499	PASS
365	198	1	200	4.4	3762	PASS
441	442	0.01	24	15.4	16386	PASS
442	198	50	400	124.5	106667	PASS
443	442	15	24	19.3	20599	PASS

REVIEWED BY
By Janice Whitt at 10:35:28 AM, 8/18/2016

Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160809\16080902.D Vial: 2
Acq On : 9 Aug 2016 8:54 am Operator: DEW
Sample : ICV-160809 Inst : GC/MS #6
Misc : ICV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 10 7:03 2016 Quant Results File: PP160801.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration
DataAcq Meth : PP160801

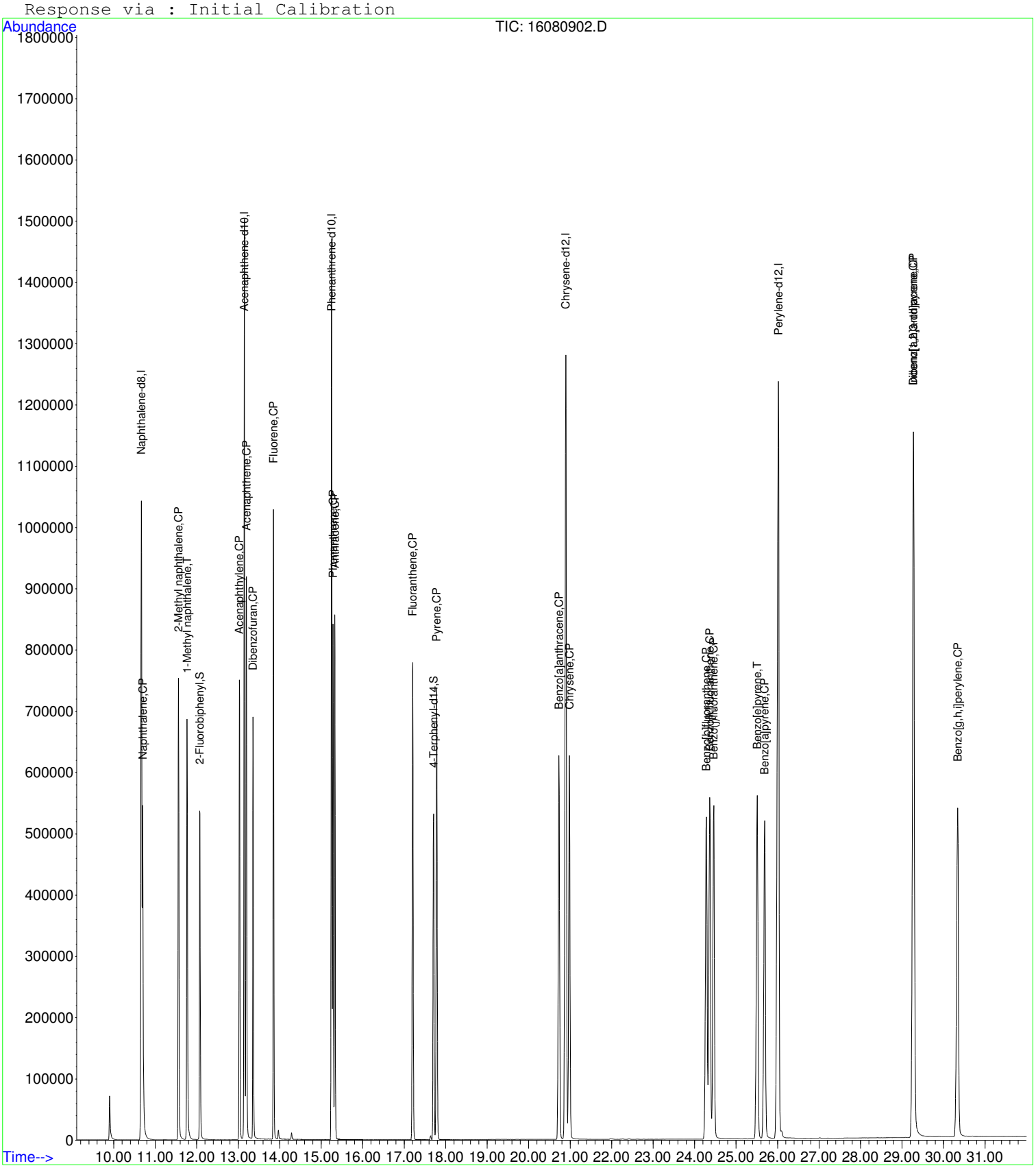
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.66	136	1587024	4000.00	ug/kg	113
5) Acenaphthene-d10	13.15	164	890963	4000.00	ug/kg	149
11) Phenanthrene-d10	15.25	188	1747609	4000.00	ug/kg	110
17) Chrysene-d12	20.89	240	2277705	4000.00	ug/kg	124
20) Perylene-d12	26.02	264	2509769	4000.00	ug/kg	130
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.08	172	547855	1762.84	ug/kg	-0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery = 44.07%			
16) 4-Terphenyl-d14	17.71	244	755982	1833.06	ug/kg	-0.03
Spiked Amount 4000.000	Range 40 - 140		Recovery = 45.83%			
Target Compounds						Qvalue
2) Naphthalene	10.70	128	653309	1809.29	ug/kg	100
3) 2-Methyl naphthalene	11.56	142	468341	2000.74	ug/kg	99
4) 1-Methyl naphthalene	11.77	142	425256	2050.96	ug/kg	99
6) Dibenzofuran	13.36	168	652676	1810.17	ug/kg	100
8) Acenaphthylene	13.03	152	733226	1858.37	ug/kg	99
9) Acenaphthene	13.20	154	430038	1881.94	ug/kg	98
10) Fluorene	13.85	166	545335	1898.53	ug/kg	99
12) Phenanthrene	15.29	178	752030	1815.06	ug/kg	100
13) Anthracene	15.33	178	780534	1790.33	ug/kg	100
14) Fluoranthene	17.21	202	842354	1715.54	ug/kg	99
15) Pyrene	17.78	202	855241	1717.77	ug/kg	100
18) Benzo[a]anthracene	20.73	228	977961	1904.94	ug/kg	100
19) Chrysene	20.98	228	921673	1866.15	ug/kg	99
21) Benzo[b]fluoranthene	24.28	252	1109859	1915.55	ug/kg	99
22) Benzo[k]fluoranthene	24.37	252	1037272	1951.46	ug/kg	100
23) Benzo(j)fluoranthene	24.46	252	999898	1957.47	ug/kg	99
24) Benzo[e]pyrene	25.51	252	1082231	1924.77	ug/kg	99
25) Benzo[a]pyrene	25.69	252	1061292	1895.78	ug/kg	99
26) Dibenz[a,h]anthracene	29.27	278	1120054	2067.52	ug/kg	98
27) Indeno[1,2,3-cd]pyrene	29.28	276	1313824	2043.69	ug/kg	99
28) Benzo[g,h,i]perylene	30.34	276	1106758	2055.50	ug/kg	98

(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160809\16080902.D Vial: 2
Acq On : 9 Aug 2016 8:54 am Operator: DEW
Sample : ICV-160809 Inst : GC/MS #6
Misc : ICV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 10 7:03 2016 Quant Results File: PP160801.RES

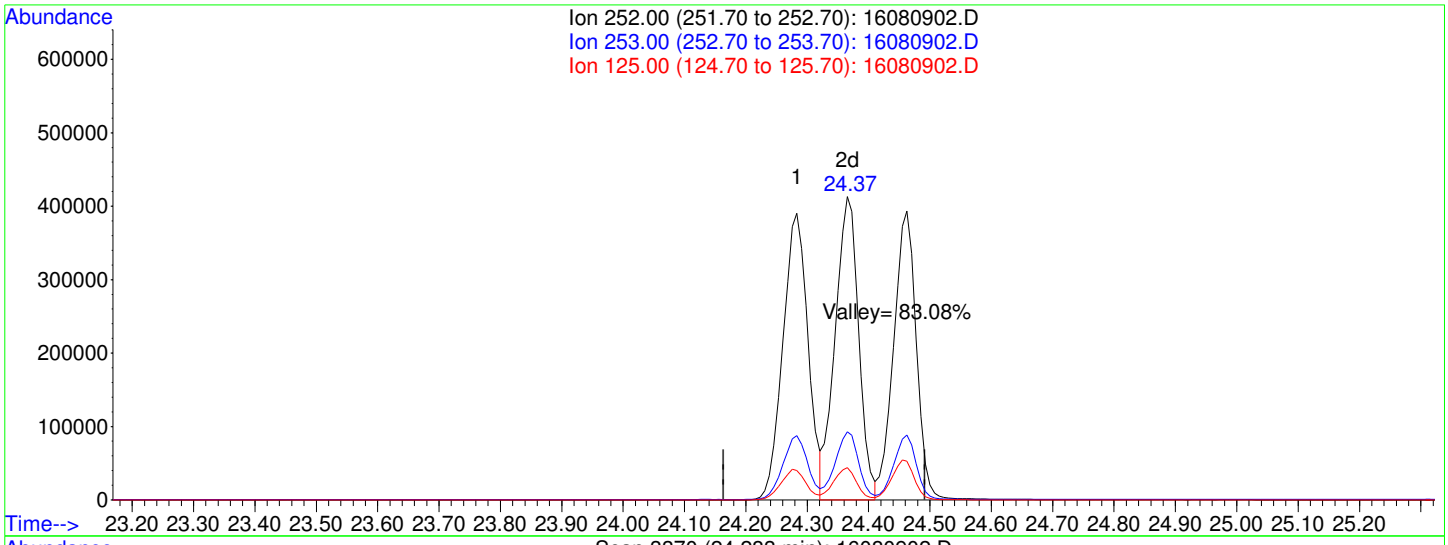
Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration

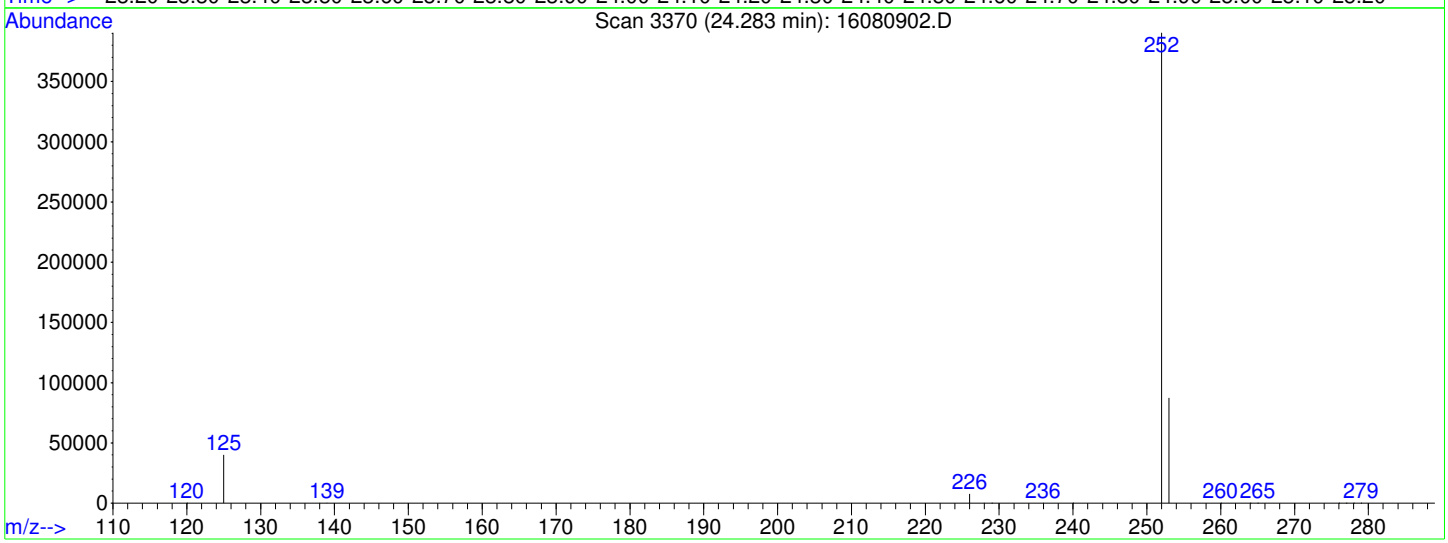


Quantitation Report (Qedit)

Data File : C:\HPCHEM\1\DATA\160809\16080902.D Vial: 2
Acq On : 9 Aug 2016 8:54 am Operator: DEW
Sample : ICV-160809 Inst : GC/MS #6
Misc : ICV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 9 9:27 2016 Quant Results File: temp.res

Method : C:\HPCHEM\1\METHODS\DFTPPPAH.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Jun 28 10:28:09 2011
Response via : Multiple Level Calibration





TIC: 16080902.D

(21) Benzo[b]fluoranthene (CP)

24.28min 1915.55ug/kg

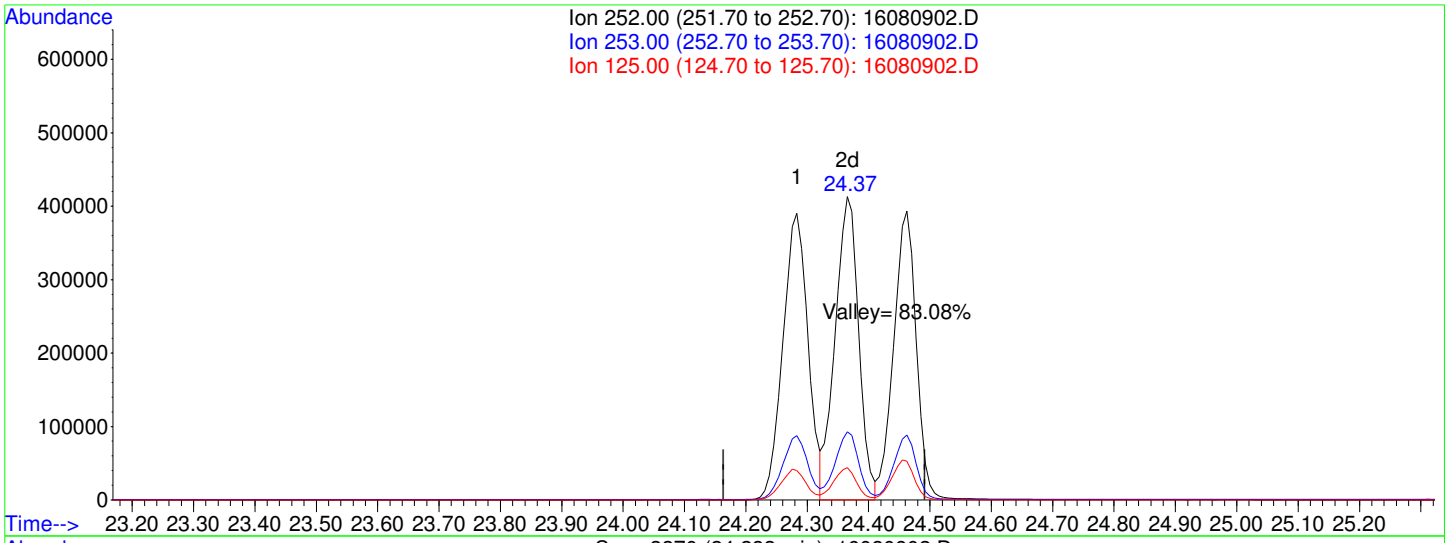
response 1109859

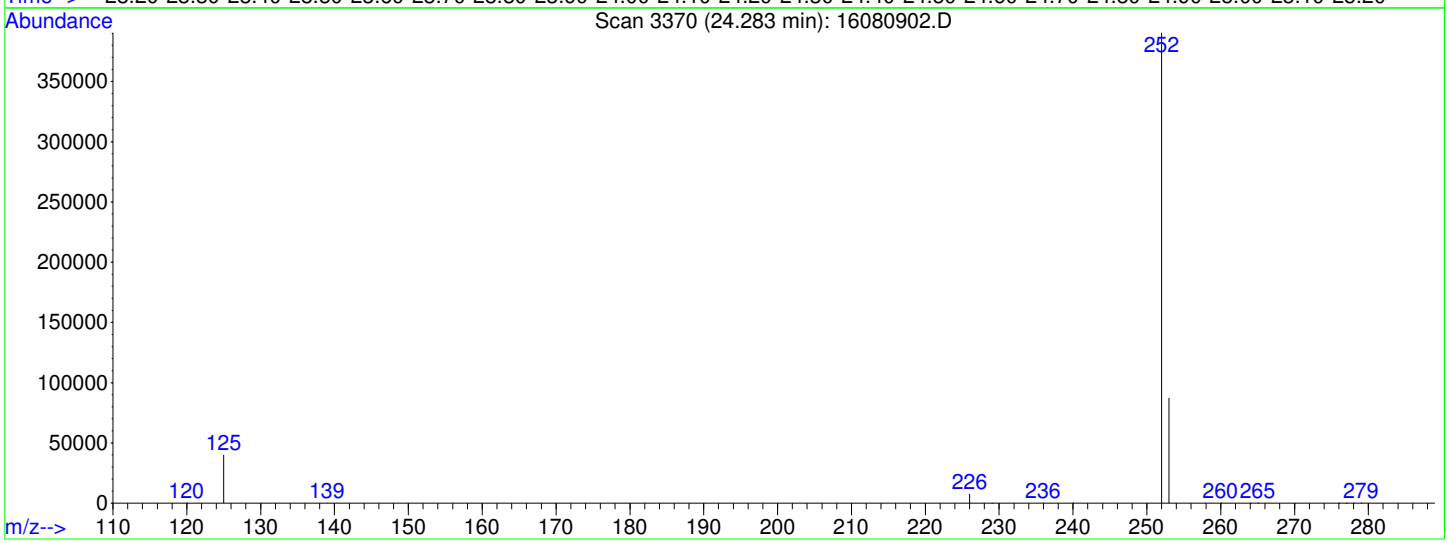
Ion	Exp%	Act%
252.00	100	100
253.00	22.00	22.22
125.00	10.60	10.29
0.00	0.00	0.00

Quantitation Report (Qedit)

Data File : C:\HPCHEM\1\DATA\160809\16080902.D Vial: 2
Acq On : 9 Aug 2016 8:54 am Operator: DEW
Sample : ICV-160809 Inst : GC/MS #6
Misc : ICV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 9 9:27 2016 Quant Results File: temp.res

Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Multiple Level Calibration





TIC: 16080902.D

(21) Benzo[b]fluoranthene (CP)

24.28min 1915.55ug/kg

response 1109859

Ion	Exp%	Act%
252.00	100	100
253.00	22.00	22.22
125.00	10.60	10.29
0.00	0.00	0.00

Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160809\16080903.D Vial: 3
Acq On : 9 Aug 2016 9:35 am Operator: DEW
Sample : LCS-76609 Inst : GC/MS #6
Misc : LCS Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 10 7:03 2016 Quant Results File: PP160801.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration
DataAcq Meth : PP160801

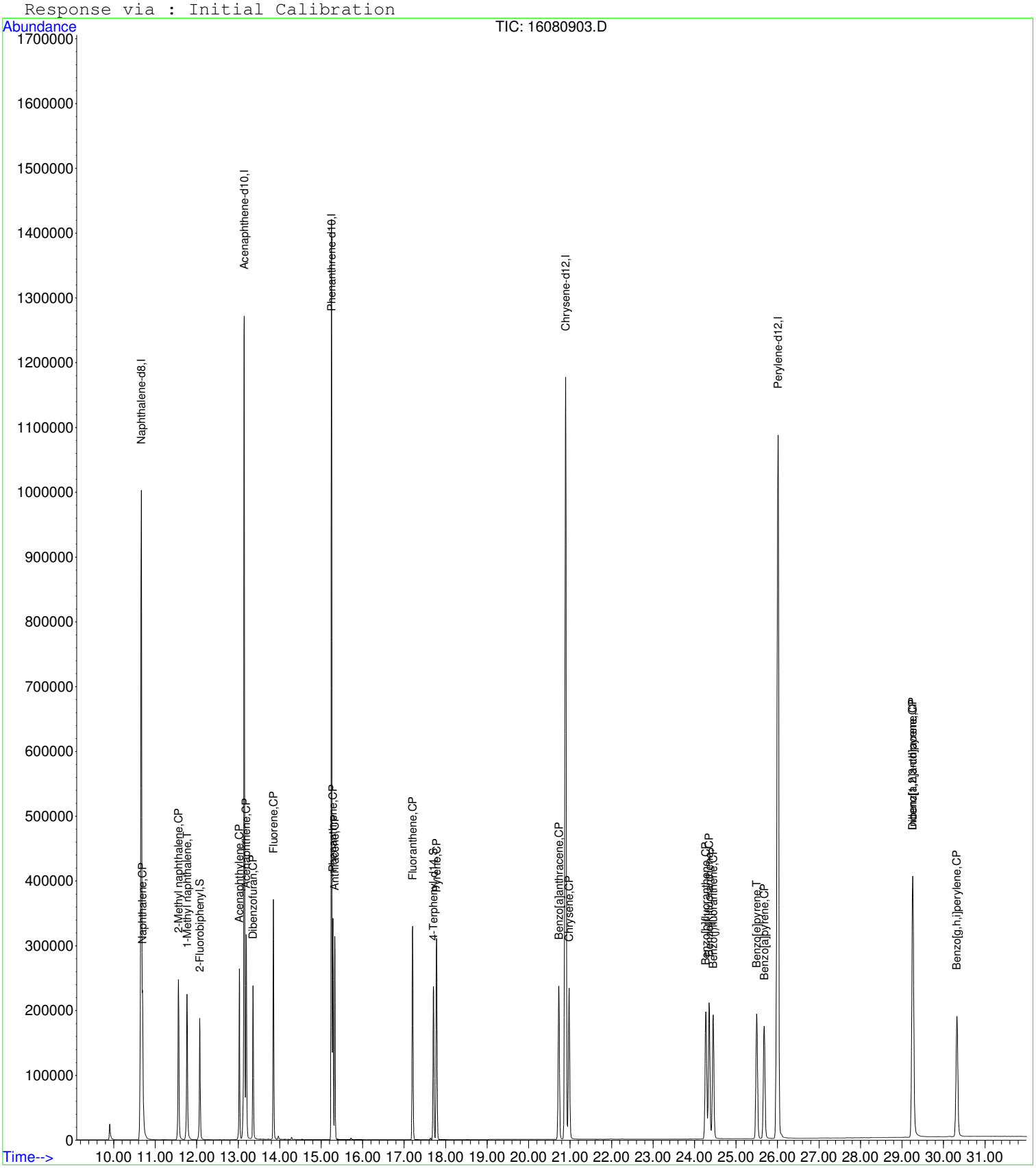
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.66	136	1689961	4000.00	ug/kg	120
5) Acenaphthene-d10	13.15	164	818815	4000.00	ug/kg	137
11) Phenanthrene-d10	15.25	188	1650785	4000.00	ug/kg	104
17) Chrysene-d12	20.89	240	2085866	4000.00	ug/kg	114
20) Perylene-d12	26.01	264	2190433	4000.00	ug/kg	114
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.07	172	207033	724.87	ug/kg	-0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery = 18.12%#			
16) 4-Terphenyl-d14	17.71	244	324628	833.31	ug/kg	-0.03
Spiked Amount 4000.000	Range 40 - 140		Recovery = 20.83%#			
Target Compounds						Qvalue
2) Naphthalene	10.69	128	262687	683.18	ug/kg	100
3) 2-Methyl naphthalene	11.56	142	183842	737.53	ug/kg	98
4) 1-Methyl naphthalene	11.77	142	165935	751.54	ug/kg	99
6) Dibenzofuran	13.36	168	235659	711.18	ug/kg	99
8) Acenaphthylene	13.03	152	265983	733.54	ug/kg	99
9) Acenaphthene	13.19	154	159322	758.66	ug/kg	100
10) Fluorene	13.85	166	198114	750.49	ug/kg	100
12) Phenanthrene	15.28	178	297239	759.48	ug/kg	99
13) Anthracene	15.33	178	294942	716.19	ug/kg	100
14) Fluoranthene	17.20	202	358037	771.95	ug/kg	99
15) Pyrene	17.78	202	361234	768.10	ug/kg	100
18) Benzo[a]anthracene	20.73	228	368393	783.58	ug/kg	99
19) Chrysene	20.98	228	340733	753.35	ug/kg	99
21) Benzo[b]fluoranthene	24.27	252	405588	802.08	ug/kg	100
22) Benzo[k]fluoranthene	24.35	252	375223	808.84	ug/kg	100
23) Benzo(j)fluoranthene	24.45	252	358765	804.73	ug/kg	99
24) Benzo[e]pyrene	25.50	252	392998	800.85	ug/kg	99
25) Benzo[a]pyrene	25.68	252	363517	744.02	ug/kg	99
26) Dibenz[a,h]anthracene	29.26	278	390655	826.24	ug/kg	99
27) Indeno[1,2,3-cd]pyrene	29.27	276	466772	831.93	ug/kg	98
28) Benzo[g,h,i]perylene	30.33	276	391301	832.68	ug/kg	98

(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160809\16080903.D Vial: 3
Acq On : 9 Aug 2016 9:35 am Operator: DEW
Sample : LCS-76609 Inst : GC/MS #6
Misc : LCS Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 10 7:03 2016 Quant Results File: PP160801.RES

Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160809\16080904.D Vial: 4
Acq On : 9 Aug 2016 10:15 am Operator: DEW
Sample : MB-76609 Inst : GC/MS #6
Misc : MBLK Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 10 7:03 2016 Quant Results File: PP160801.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration
DataAcq Meth : PP160801

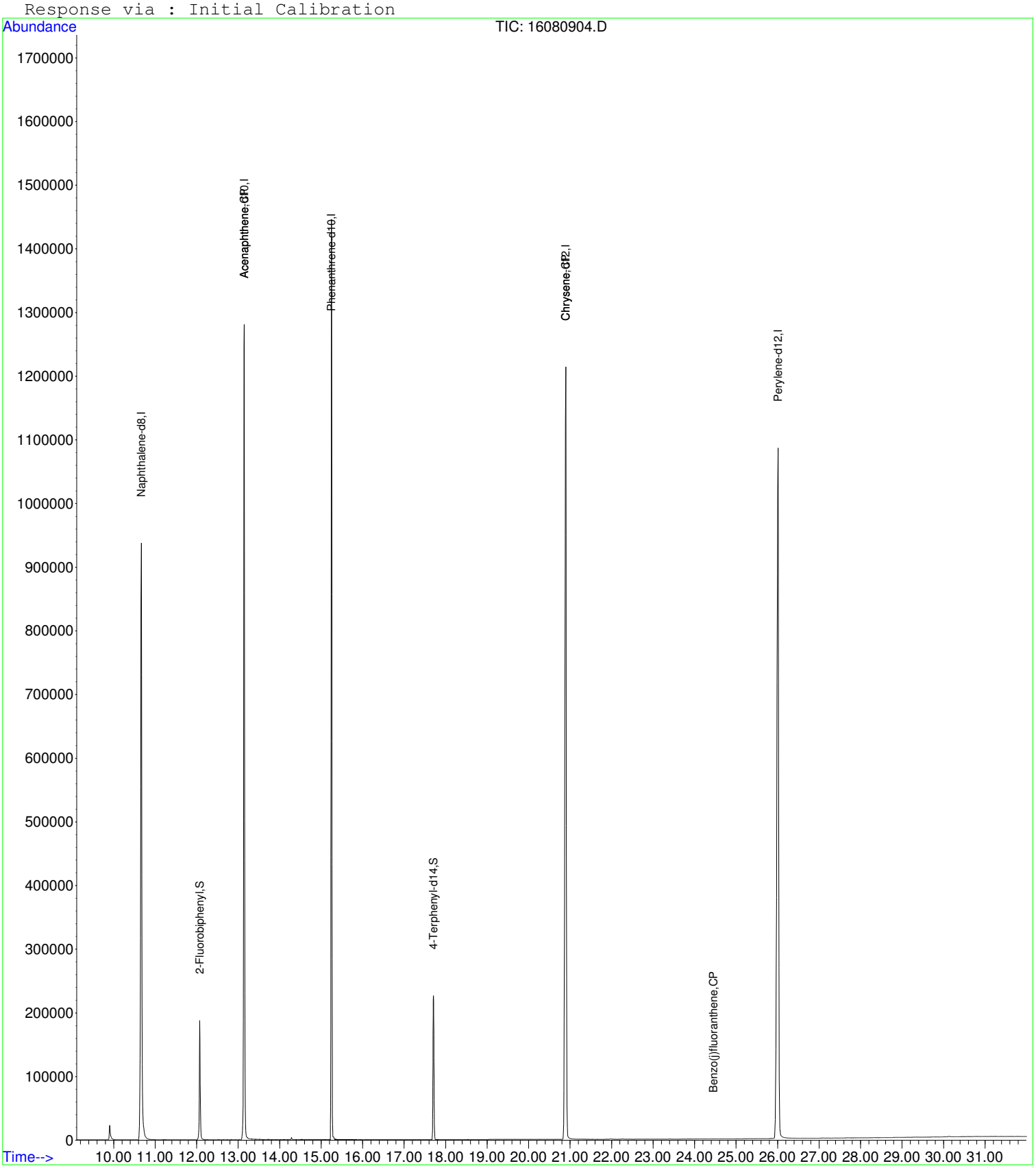
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.66	136	1649373	4000.00	ug/kg	118
5) Acenaphthene-d10	13.15	164	819543	4000.00	ug/kg	137
11) Phenanthrene-d10	15.25	188	1670793	4000.00	ug/kg	105
17) Chrysene-d12	20.89	240	2080657	4000.00	ug/kg	113
20) Perylene-d12	26.01	264	2173751	4000.00	ug/kg	113
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.07	172	205702	719.57	ug/kg	-0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery = 17.99%#			
16) 4-Terphenyl-d14	17.71	244	321604	815.66	ug/kg	-0.03
Spiked Amount 4000.000	Range 40 - 140		Recovery = 20.39%#			
Target Compounds						Qvalue
9) Acenaphthene	13.14	154	2778	13.22	ug/kg#	11
19) Chrysene	20.89	228	4481	9.93	ug/kg	70
23) Benzo(j)fluoranthene	24.46	252	50	0.11	ug/kg#	1

(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160809\16080904.D Vial: 4
Acq On : 9 Aug 2016 10:15 am Operator: DEW
Sample : MB-76609 Inst : GC/MS #6
Misc : MBLK Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 10 7:03 2016 Quant Results File: PP160801.RES

Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160809\16080905.D Vial: 5
Acq On : 9 Aug 2016 10:57 am Operator: DEW
Sample : 1607317-05A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 10 7:14 2016 Quant Results File: PP160801.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration
DataAcq Meth : PP160801

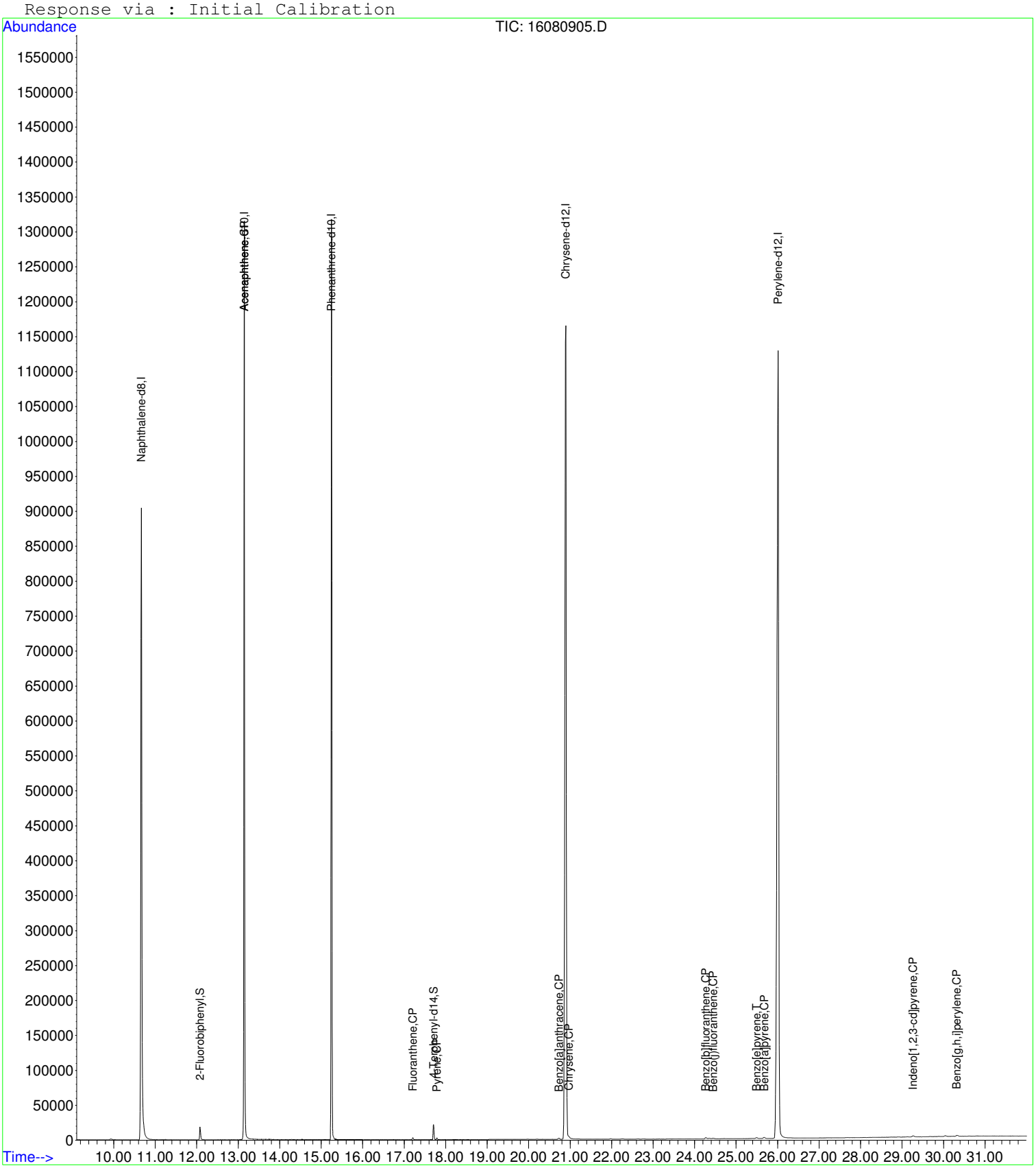
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.66	136	1470676	4000.00	ug/kg	105
5) Acenaphthene-d10	13.15	164	797094	4000.00	ug/kg	133
11) Phenanthrene-d10	15.25	188	1504958	4000.00	ug/kg	95
17) Chrysene-d12	20.89	240	2078625	4000.00	ug/kg	113
20) Perylene-d12	26.01	264	2257426	4000.00	ug/kg	117
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.08	172	22219	79.91	ug/kg	-0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.00%#		
16) 4-Terphenyl-d14	17.71	244	31255	88.00	ug/kg	-0.03
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.20%#		
Target Compounds						Qvalue
9) Acenaphthene	13.14	154	2676	~~13.09 ug/kg#~~		~~11~~
14) Fluoranthene	17.21	202	3678	8.70	ug/kg	98
15) Pyrene	17.79	202	3330	7.77	ug/kg	97
18) Benzo[a]anthracene	20.73	228	2538	5.42	ug/kg	96
19) Chrysene	20.98	228	2937	6.52	ug/kg	98
21) Benzo[b]fluoranthene	24.28	252	3820	7.33	ug/kg	95
23) Benzo(j)fluoranthene	24.45	252	1818	3.96	ug/kg	86
24) Benzo[e]pyrene	25.49	252	3034	6.00	ug/kg	95
25) Benzo[a]pyrene	25.68	252	3697	7.34	ug/kg	95
27) Indeno[1,2,3-cd]pyrene	29.26	276	3357	5.81	ug/kg	86
28) Benzo[g,h,i]perylene	30.33	276	3170	6.55	ug/kg	97

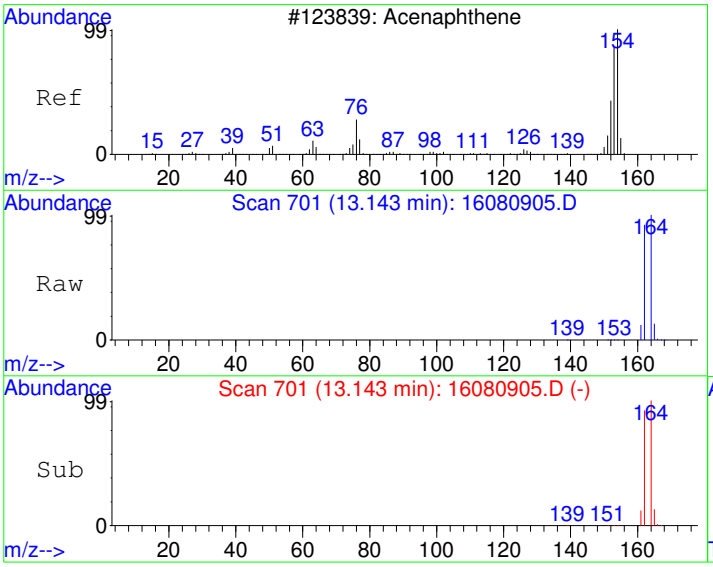
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160809\16080905.D Vial: 5
Acq On : 9 Aug 2016 10:57 am Operator: DEW
Sample : 1607317-05A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 10 7:14 2016 Quant Results File: PP160801.RES

Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration

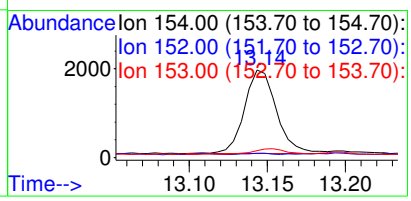


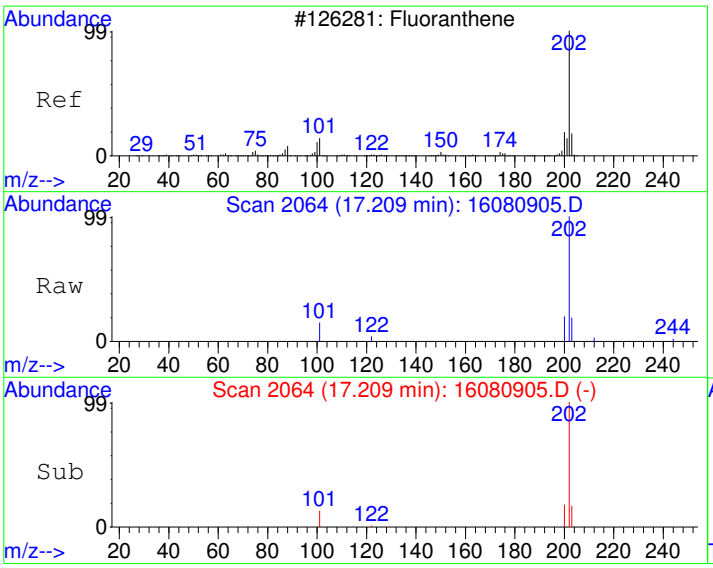


#9
Acenaphthene
Concen: 13.09 ug/kg
RT: 13.14 min Scan# 701
Delta R.T. -0.07 min
Lab File: 16080905.D
Acq: 9 Aug 2016 10:57 am

Tgt Ion:154 Resp: 2676

Ion	Ratio	Lower	Upper
154	100		
152	1.5	19.1	79.1#
153	4.4	76.2	136.2#

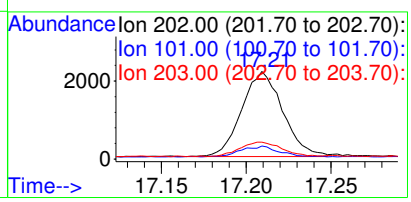


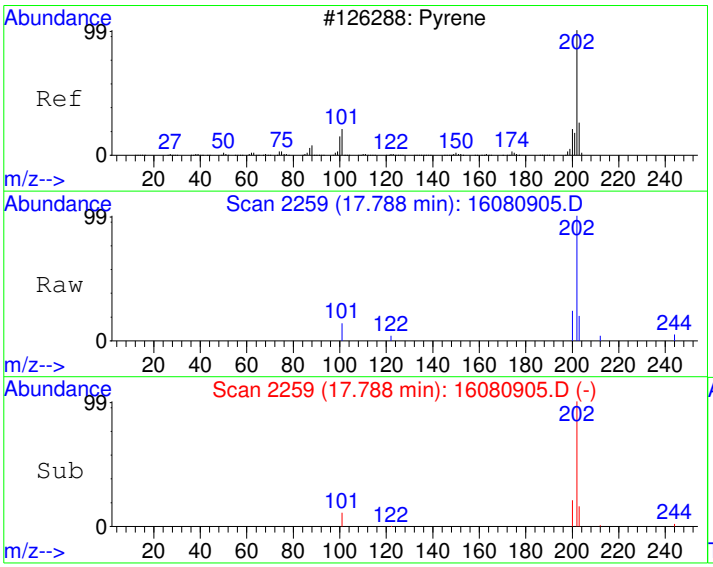


#14
Fluoranthene
Concen: 8.70 ug/kg
RT: 17.21 min Scan# 2064
Delta R.T. -0.02 min
Lab File: 16080905.D
Acq: 9 Aug 2016 10:57 am

Tgt Ion:202 Resp: 3678

Ion	Ratio	Lower	Upper
202	100		
101	12.7	0.0	42.1
203	17.0	0.0	47.9

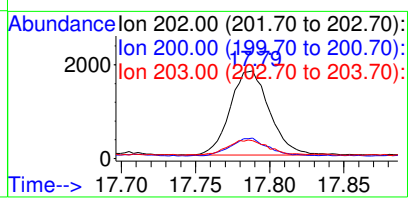


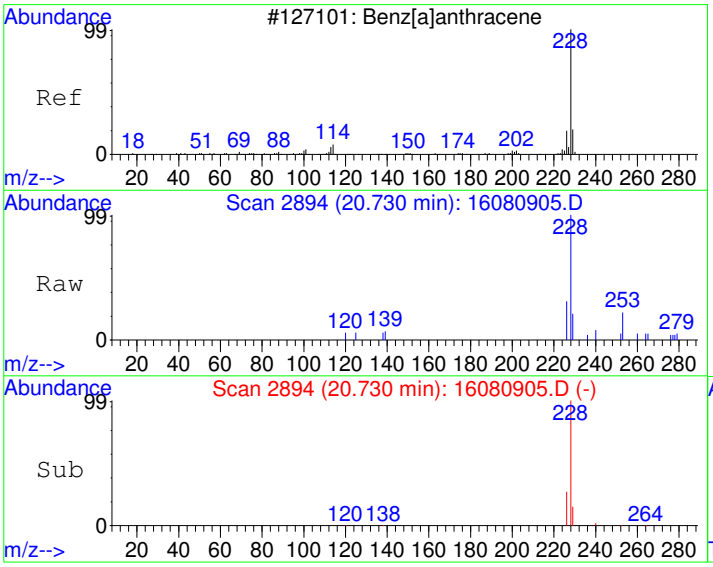


#15
Pyrene
Concen: 7.77 ug/kg
RT: 17.79 min Scan# 2259
Delta R.T. -0.02 min
Lab File: 16080905.D
Acq: 9 Aug 2016 10:57 am

Tgt Ion:202 Resp: 3330

Ion	Ratio	Lower	Upper
202	100		
200	21.4	0.0	49.7
203	17.0	0.0	47.8

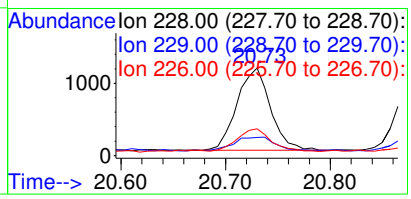


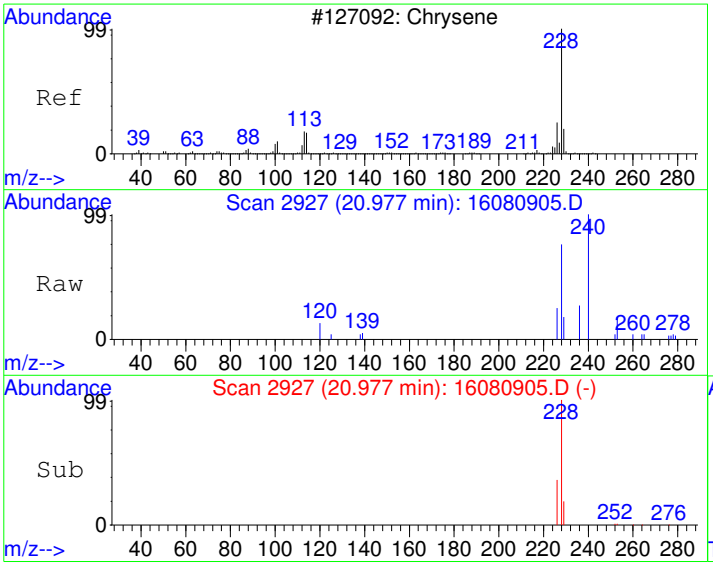


#18
Benzo[a]anthracene
Concen: 5.42 ug/kg
RT: 20.73 min Scan# 2894
Delta R.T. -0.04 min
Lab File: 16080905.D
Acq: 9 Aug 2016 10:57 am

Tgt Ion:228 Resp: 2538

Ion	Ratio	Lower	Upper
228	100		
229	16.3	0.0	49.8
226	26.7	0.0	55.8

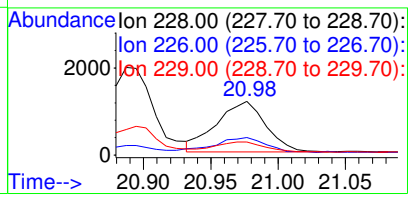


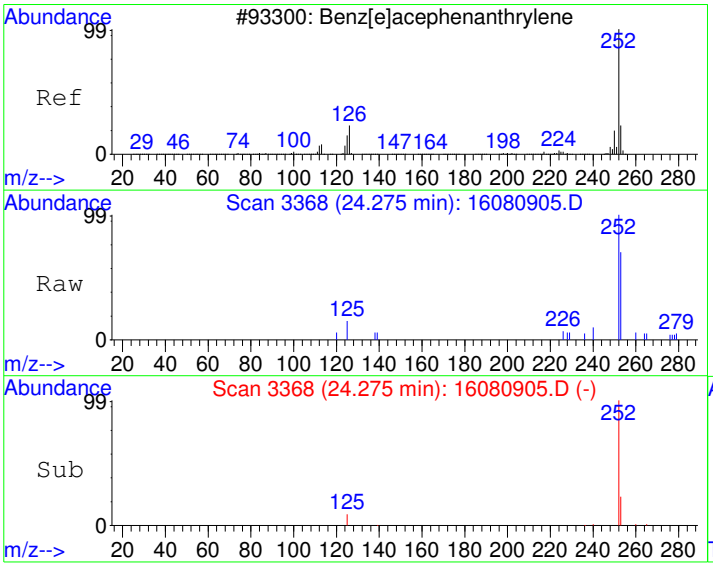


#19
Chrysene
Concen: 6.52 ug/kg
RT: 20.98 min Scan# 2927
Delta R.T. -0.05 min
Lab File: 16080905.D
Acq: 9 Aug 2016 10:57 am

Tgt Ion:228 Resp: 2937

Ion	Ratio	Lower	Upper
228	100		
226	26.9	0.0	58.1
229	19.6	0.0	50.0

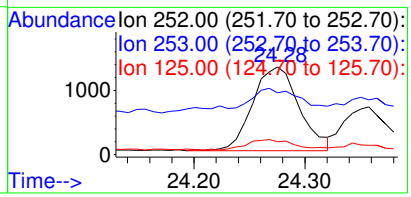


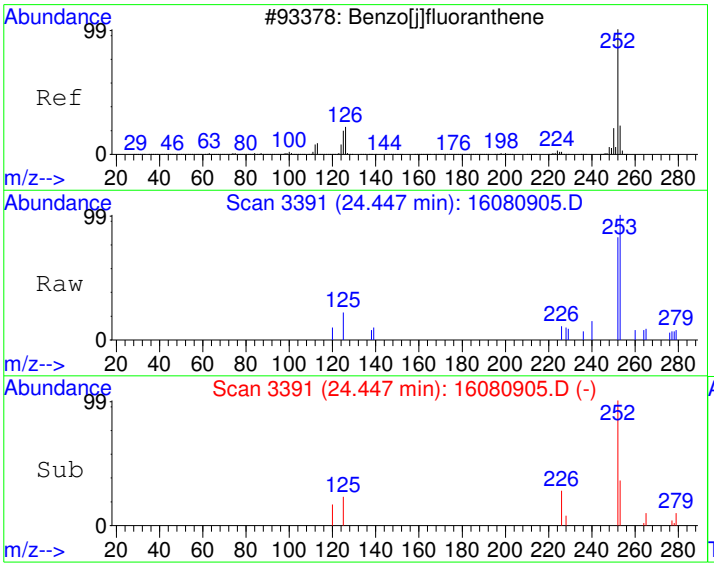


#21
Benzo[b]fluoranthene
Concen: 7.33 ug/kg
RT: 24.28 min Scan# 3368
Delta R.T. -0.05 min
Lab File: 16080905.D
Acq: 9 Aug 2016 10:57 am

Tgt Ion:252 Resp: 3820

Ion	Ratio	Lower	Upper
252	100		
253	19.5	0.0	52.0
125	9.0	0.0	40.6

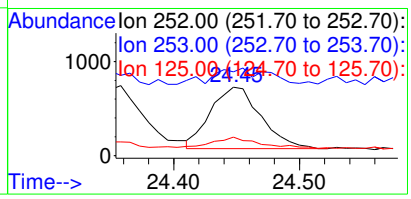


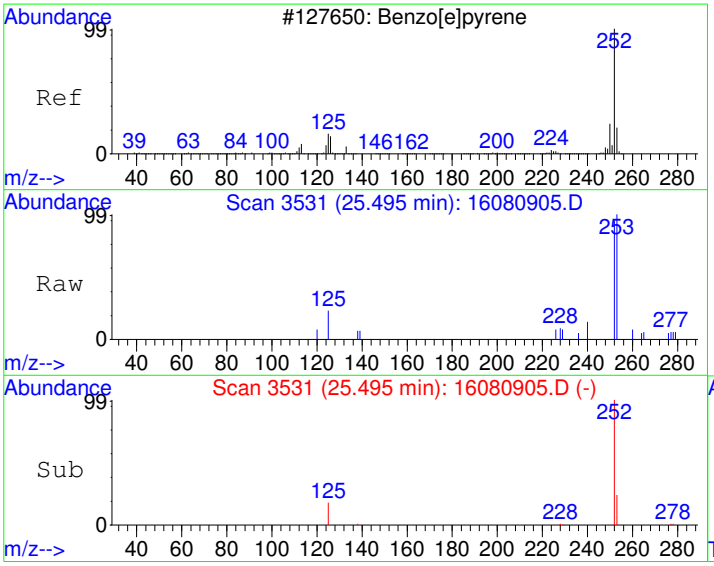


#23
Benzo(j)fluoranthene
Concen: 3.96 ug/kg
RT: 24.45 min Scan# 3391
Delta R.T. -0.06 min
Lab File: 16080905.D
Acq: 9 Aug 2016 10:57 am

Tgt Ion:252 Resp: 1818

Ion	Ratio	Lower	Upper
252	100		
253	13.8	2.2	42.2
125	17.5	0.0	34.4

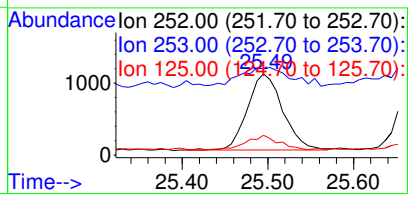


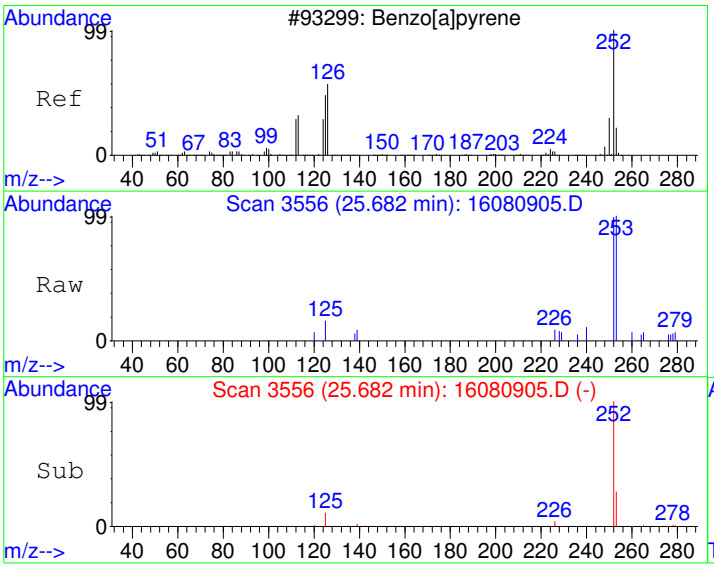


#24
Benzo[e]pyrene
Concen: 6.00 ug/kg
RT: 25.49 min Scan# 3531
Delta R.T. -0.06 min
Lab File: 16080905.D
Acq: 9 Aug 2016 10:57 am

Tgt Ion:252 Resp: 3034

Ion	Ratio	Lower	Upper
252	100		
253	20.5	2.2	42.2
125	18.6	0.0	35.7

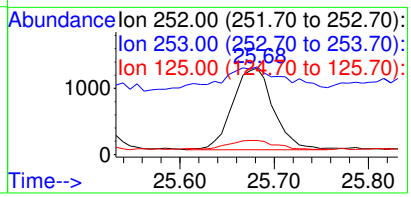


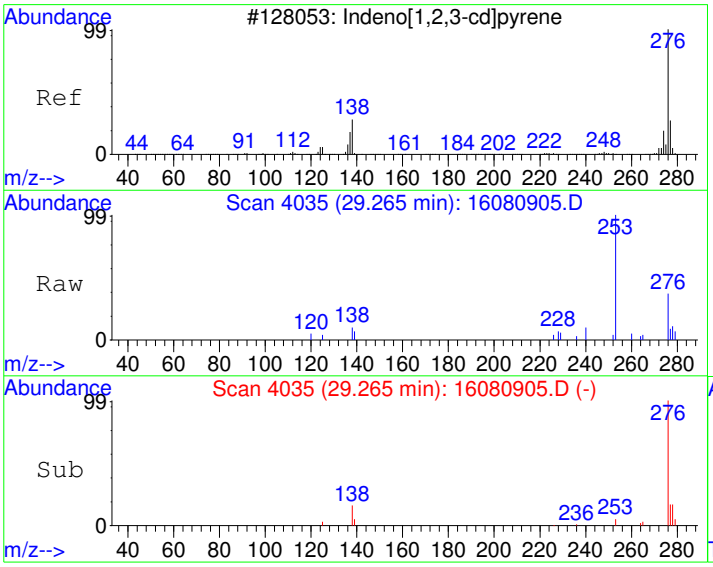


#25
Benzo[a]pyrene
Concen: 7.34 ug/kg
RT: 25.68 min Scan# 3556
Delta R.T. -0.05 min
Lab File: 16080905.D
Acq: 9 Aug 2016 10:57 am

Tgt Ion:252 Resp: 3697

Ion	Ratio	Lower	Upper
252	100		
253	25.3	2.0	42.0
125	10.9	0.0	31.6

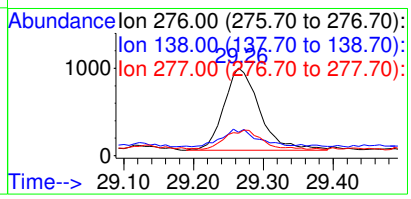


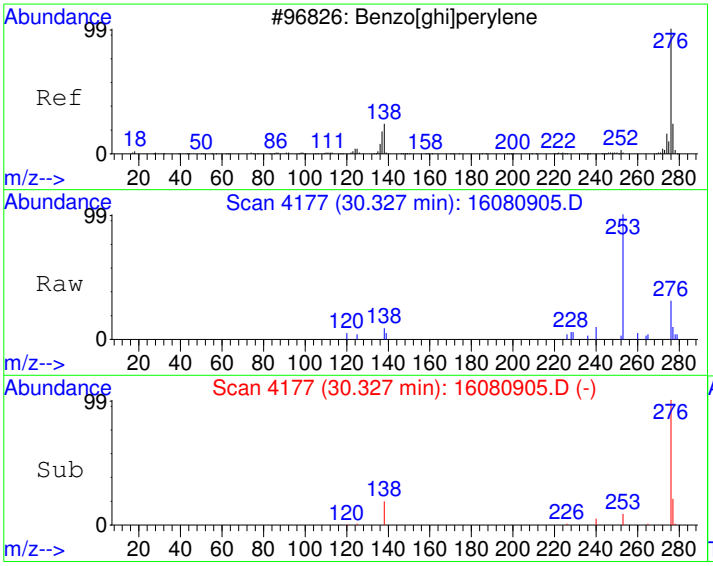


#27
Indeno[1,2,3-cd]pyrene
Concen: 5.81 ug/kg
RT: 29.26 min Scan# 4035
Delta R.T. -0.06 min
Lab File: 16080905.D
Acq: 9 Aug 2016 10:57 am

Tgt Ion:276 Resp: 3357

Ion	Ratio	Lower	Upper
276	100		
138	17.1	4.8	44.8
277	19.2	5.6	45.6

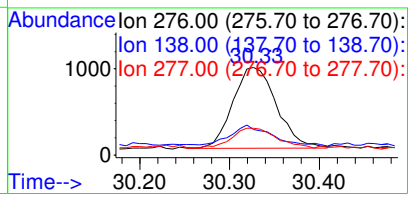




#28
Benzo[g,h,i]perylene
Concen: 6.55 ug/kg
RT: 30.33 min Scan# 4177
Delta R.T. -0.07 min
Lab File: 16080905.D
Acq: 9 Aug 2016 10:57 am

Tgt Ion:276 Resp: 3170

Ion	Ratio	Lower	Upper
276	100		
138	20.7	0.0	38.1
277	23.9	4.1	44.1



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160809\16080906.D Vial: 6
Acq On : 9 Aug 2016 11:37 am Operator: DEW
Sample : 1607317-06A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 10 7:14 2016 Quant Results File: PP160801.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration
DataAcq Meth : PP160801

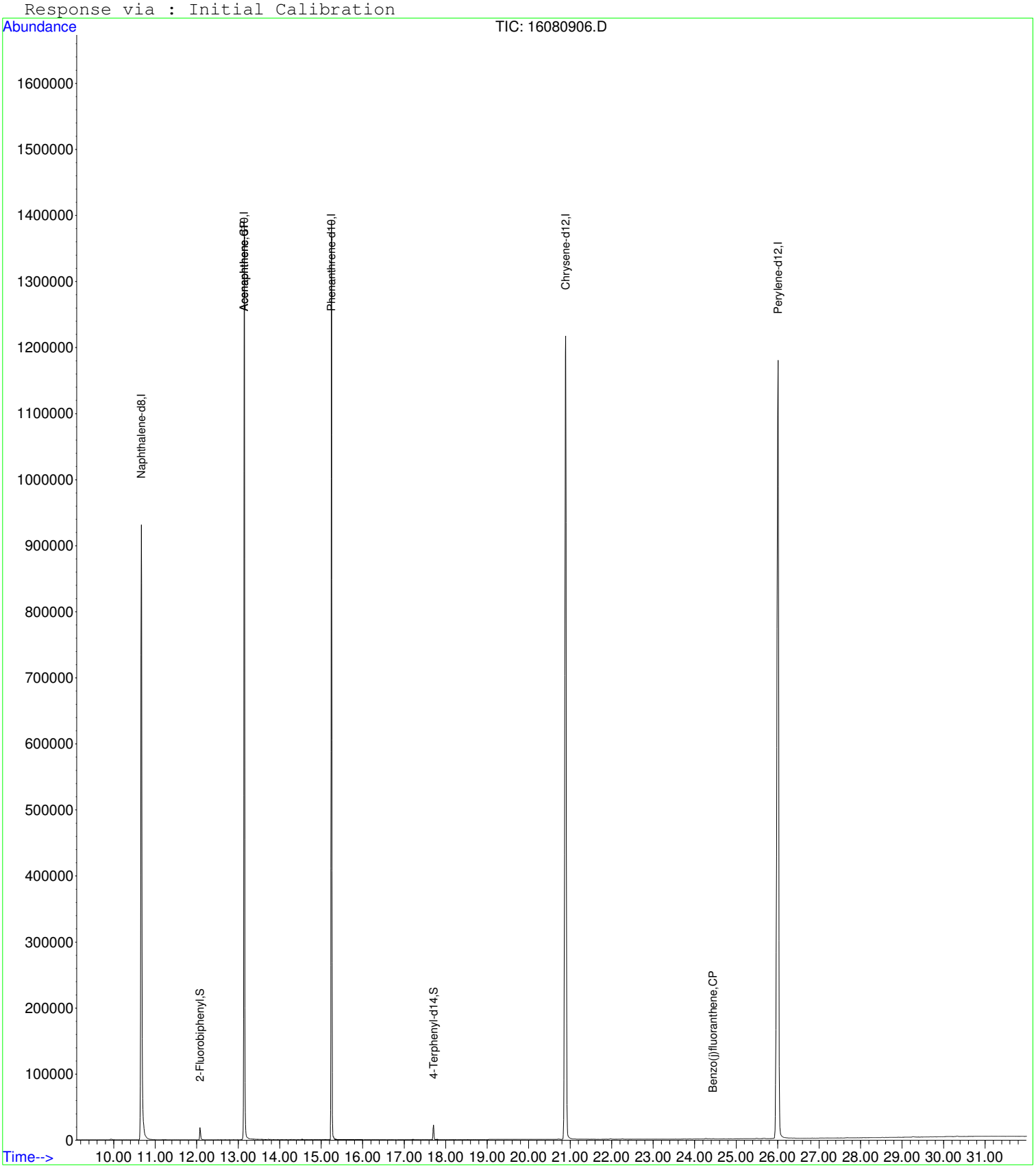
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.66	136	1536874	4000.00	ug/kg	110
5) Acenaphthene-d10	13.14	164	834817	4000.00	ug/kg	139
11) Phenanthrene-d10	15.25	188	1600990	4000.00	ug/kg	101
17) Chrysene-d12	20.89	240	2183431	4000.00	ug/kg	119
20) Perylene-d12	26.01	264	2349901	4000.00	ug/kg	122
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.08	172	21606	74.20	ug/kg	-0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.86%#		
16) 4-Terphenyl-d14	17.71	244	31022	82.11	ug/kg	-0.03
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.05%#		
Target Compounds						Qvalue
9) Acenaphthene	13.14	154	2923	~~13.65 ug/kg#~~		~~10~~
23) Benzo(j)fluoranthene	24.44	252	759	1.59	ug/kg	86

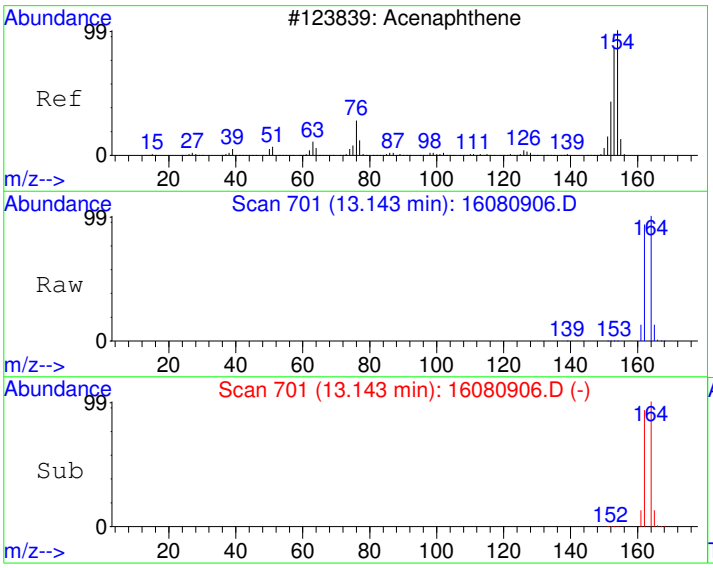
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160809\16080906.D Vial: 6
Acq On : 9 Aug 2016 11:37 am Operator: DEW
Sample : 1607317-06A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 10 7:14 2016 Quant Results File: PP160801.RES

Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration

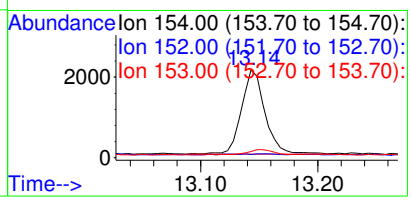


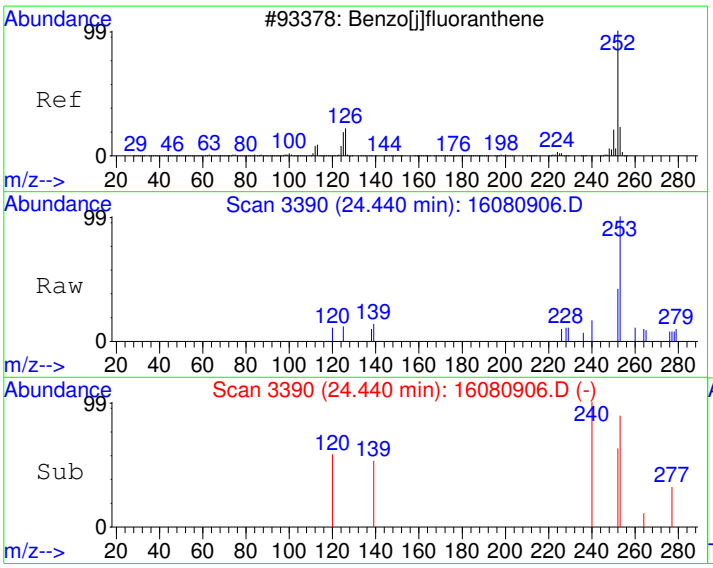


#9
Acenaphthene
Concen: 13.65 ug/kg
RT: 13.14 min Scan# 701
Delta R.T. -0.07 min
Lab File: 16080906.D
Acq: 9 Aug 2016 11:37 am

Tgt Ion:154 Resp: 2923

Ion	Ratio	Lower	Upper
154	100		
152	0.6	19.1	79.1#
153	3.8	76.2	136.2#

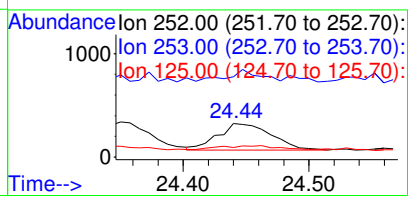




#23
Benzo(j)fluoranthene
Concen: 1.59 ug/kg
RT: 24.44 min Scan# 3390
Delta R.T. -0.07 min
Lab File: 16080906.D
Acq: 9 Aug 2016 11:37 am

Tgt Ion:252 Resp: 759

Ion	Ratio	Lower	Upper
252	100		
253	16.0	2.2	42.2
125	7.8	0.0	34.4



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160809\16080907.D Vial: 7
Acq On : 9 Aug 2016 12:18 pm Operator: DEW
Sample : 1607317-07A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 10 7:14 2016 Quant Results File: PP160801.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration
DataAcq Meth : PP160801

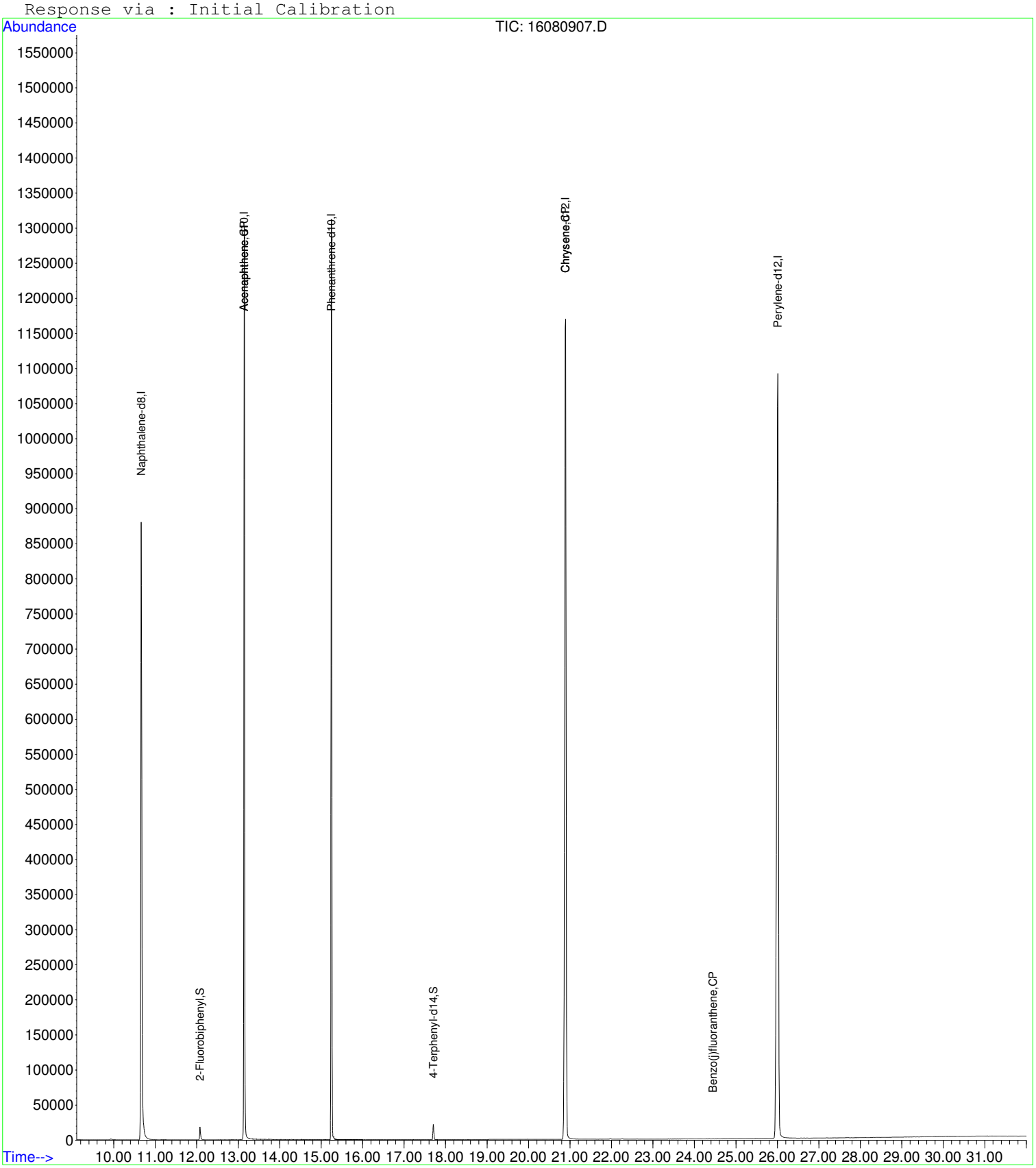
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.66	136	1436152	4000.00	ug/kg	102
5) Acenaphthene-d10	13.14	164	782232	4000.00	ug/kg	130
11) Phenanthrene-d10	15.25	188	1508323	4000.00	ug/kg	95
17) Chrysene-d12	20.89	240	2091286	4000.00	ug/kg	114
20) Perylene-d12	26.01	264	2234400	4000.00	ug/kg	116
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.08	172	21491	78.76	ug/kg	-0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.97%#		
16) 4-Terphenyl-d14	17.70	244	31074	87.30	ug/kg	-0.03
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.18%#		
Target Compounds						Qvalue
9) Acenaphthene	13.14	154	2657	~~13.24 ug/kg#~~		~~10~~
19) Chrysene	20.89	228	4385	~~9.67 ug/kg~~		~~70~~
23) Benzo(j)fluoranthene	24.44	252	125	0.27	ug/kg#	50

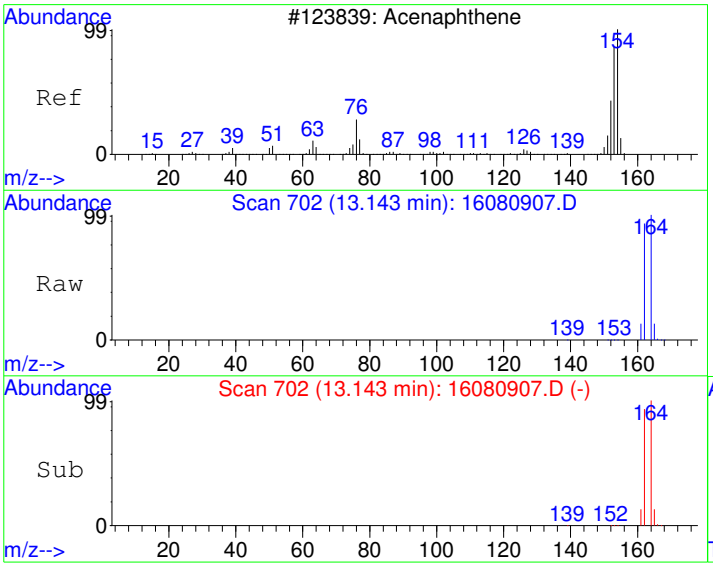
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160809\16080907.D Vial: 7
Acq On : 9 Aug 2016 12:18 pm Operator: DEW
Sample : 1607317-07A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 10 7:14 2016 Quant Results File: PP160801.RES

Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration

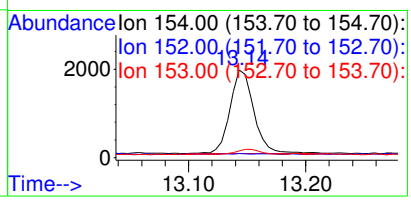


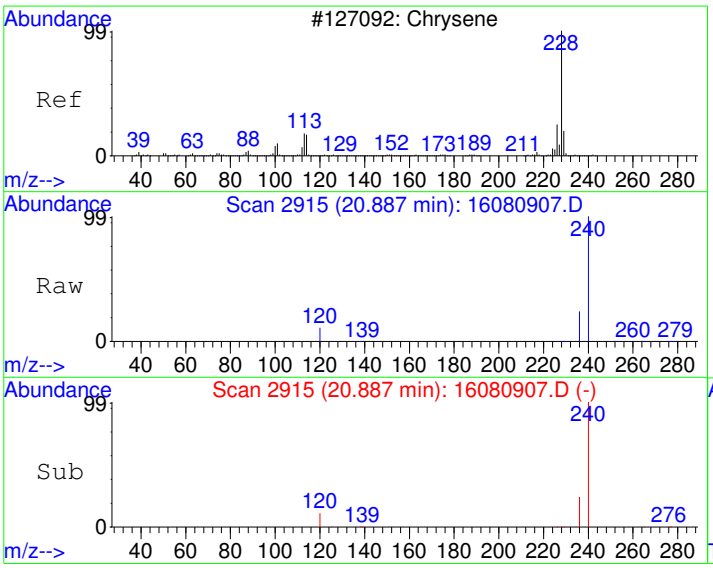


#9
Acenaphthene
Concen: 13.24 ug/kg
RT: 13.14 min Scan# 702
Delta R.T. -0.07 min
Lab File: 16080907.D
Acq: 9 Aug 2016 12:18 pm

Tgt Ion:154 Resp: 2657

Ion	Ratio	Lower	Upper
154	100		
152	1.2	19.1	79.1#
153	4.1	76.2	136.2#

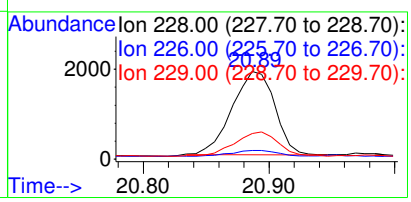


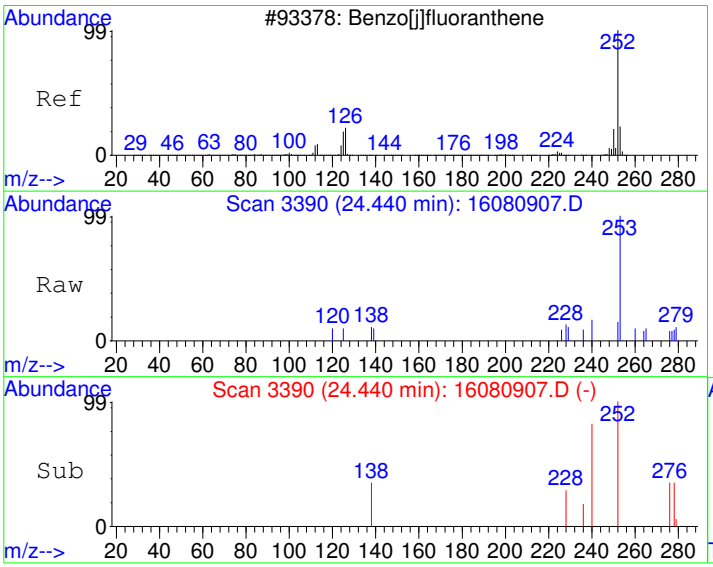


#19
Chrysene
Concen: 9.67 ug/kg
RT: 20.89 min Scan# 2915
Delta R.T. -0.14 min
Lab File: 16080907.D
Acq: 9 Aug 2016 12:18 pm

Tgt Ion:228 Resp: 4385

Ion	Ratio	Lower	Upper
228	100		
226	7.0	0.0	58.1
229	27.1	0.0	50.0

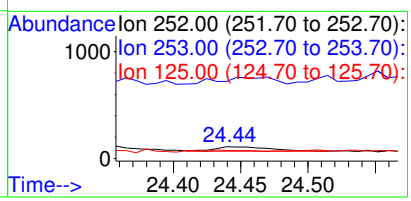




#23
Benzo(j)fluoranthene
Concen: 0.27 ug/kg
RT: 24.44 min Scan# 3390
Delta R.T. -0.07 min
Lab File: 16080907.D
Acq: 9 Aug 2016 12:18 pm

Tgt Ion:252 Resp: 125

Ion	Ratio	Lower	Upper
252	100		
253	54.5	2.2	42.2#
125	4.5	0.0	34.4



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160809\16080908.D Vial: 8
Acq On : 9 Aug 2016 12:59 pm Operator: DEW
Sample : 1607317-08A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 10 7:15 2016 Quant Results File: PP160801.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration
DataAcq Meth : PP160801

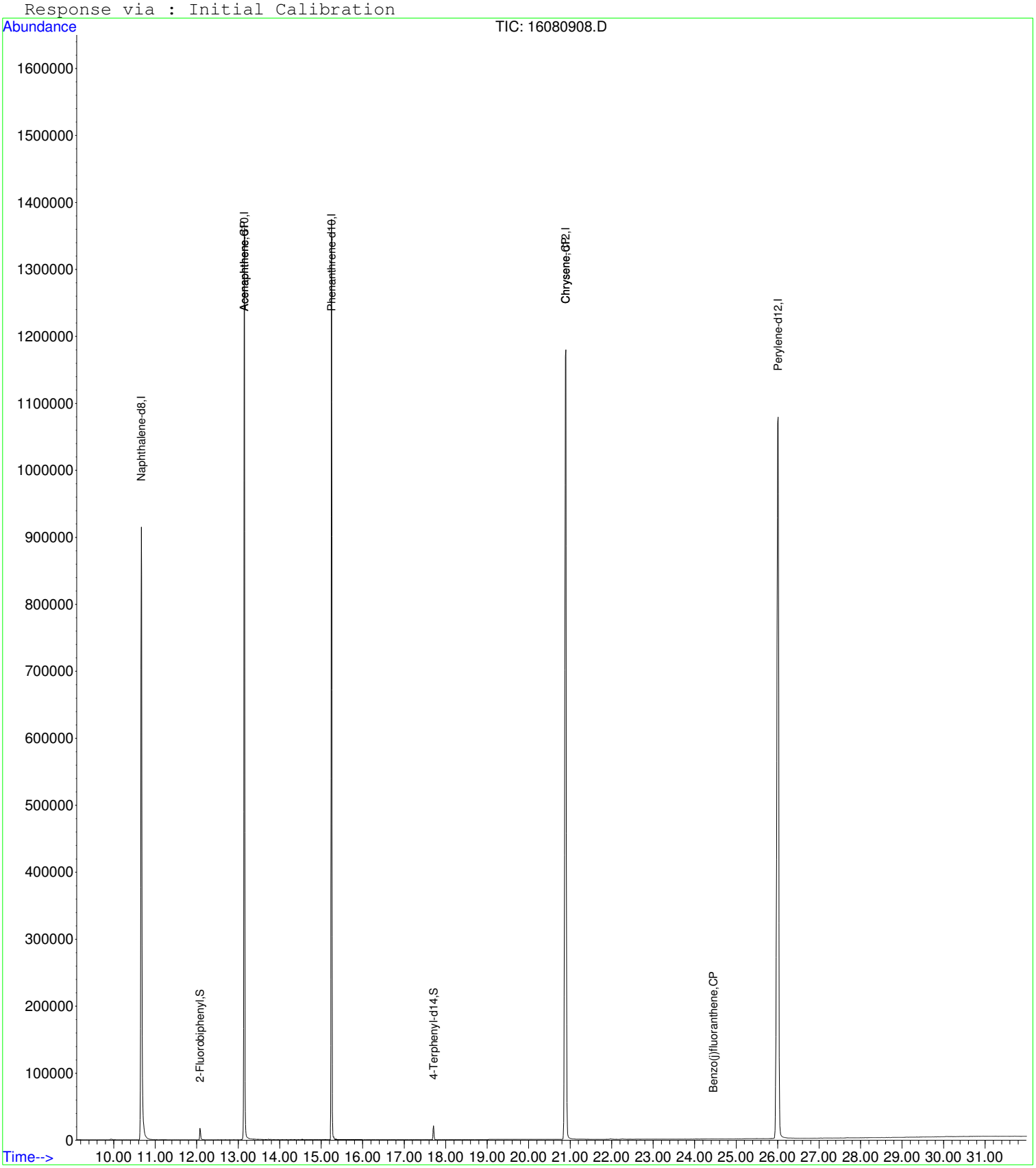
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.66	136	1504819	4000.00	ug/kg	107
5) Acenaphthene-d10	13.14	164	826261	4000.00	ug/kg	138
11) Phenanthrene-d10	15.25	188	1585692	4000.00	ug/kg	100
17) Chrysene-d12	20.89	240	2125820	4000.00	ug/kg	116
20) Perylene-d12	26.01	264	2283170	4000.00	ug/kg	118
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.08	172	20594	71.45	ug/kg	-0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.79%#		
16) 4-Terphenyl-d14	17.71	244	29985	80.13	ug/kg	-0.03
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.00%#		
Target Compounds						Qvalue
9) Acenaphthene	13.14	154	2893	13.65	ug/kg#	10
19) Chrysene	20.89	228	4638	10.06	ug/kg	69
23) Benzo(j)fluoranthene	24.45	252	113	0.24	ug/kg#	1

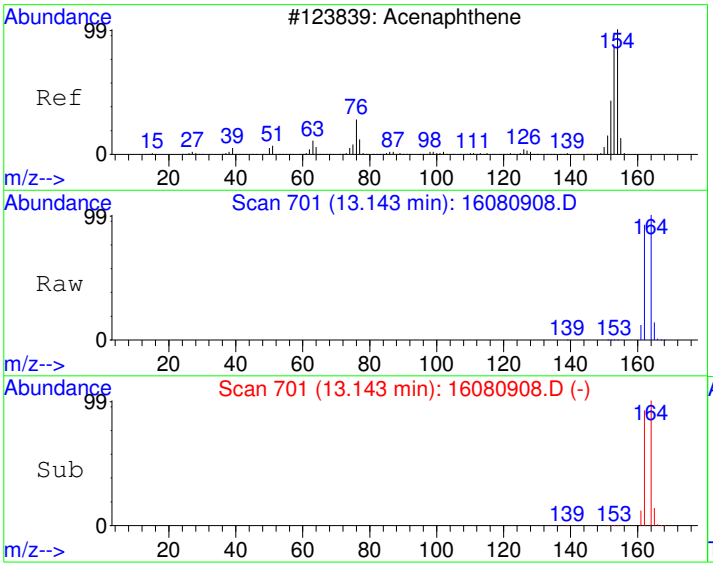
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160809\16080908.D Vial: 8
Acq On : 9 Aug 2016 12:59 pm Operator: DEW
Sample : 1607317-08A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 10 7:15 2016 Quant Results File: PP160801.RES

Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration

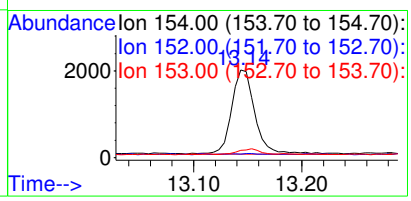


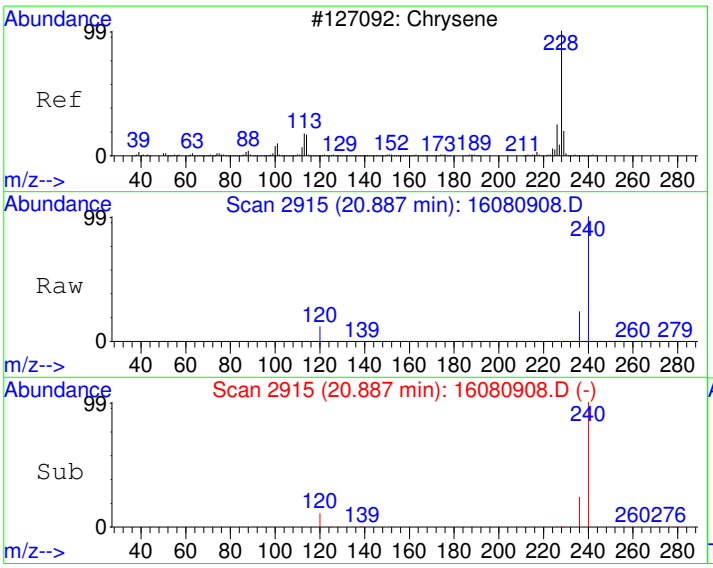


#9
Acenaphthene
Concen: 13.65 ug/kg
RT: 13.14 min Scan# 701
Delta R.T. -0.07 min
Lab File: 16080908.D
Acq: 9 Aug 2016 12:59 pm

Tgt Ion:154 Resp: 2893

Ion	Ratio	Lower	Upper
154	100		
152	0.2	19.1	79.1#
153	5.0	76.2	136.2#

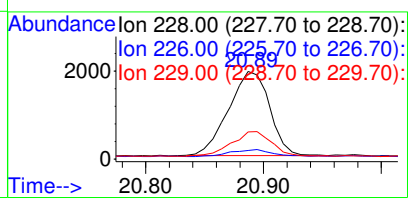


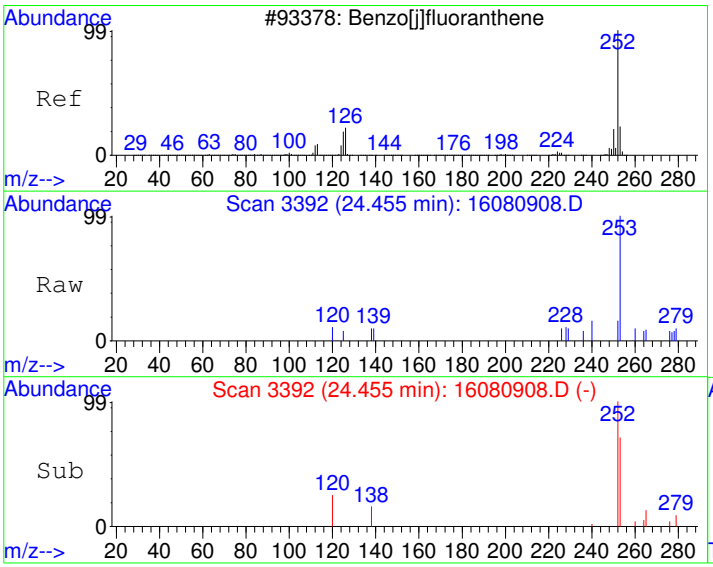


#19
Chrysene
Concen: 10.06 ug/kg
RT: 20.89 min Scan# 2915
Delta R.T. -0.14 min
Lab File: 16080908.D
Acq: 9 Aug 2016 12:59 pm

Tgt Ion:228 Resp: 4638

Ion	Ratio	Lower	Upper
228	100		
226	7.3	0.0	58.1
229	28.8	0.0	50.0

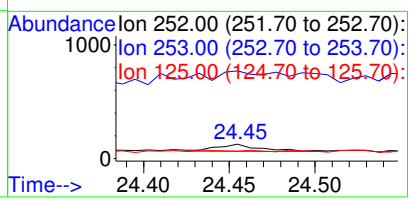




#23
Benzo(j)fluoranthene
Concen: 0.24 ug/kg
RT: 24.45 min Scan# 3392
Delta R.T. -0.05 min
Lab File: 16080908.D
Acq: 9 Aug 2016 12:59 pm

Tgt Ion:252 Resp: 113

Ion	Ratio	Lower	Upper
252	100		
253	110.3	2.2	42.2#
125	13.8	0.0	34.4



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160809\16080909.D Vial: 9
Acq On : 9 Aug 2016 1:40 pm Operator: DEW
Sample : 1607317-09A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 10 7:15 2016 Quant Results File: PP160801.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration
DataAcq Meth : PP160801

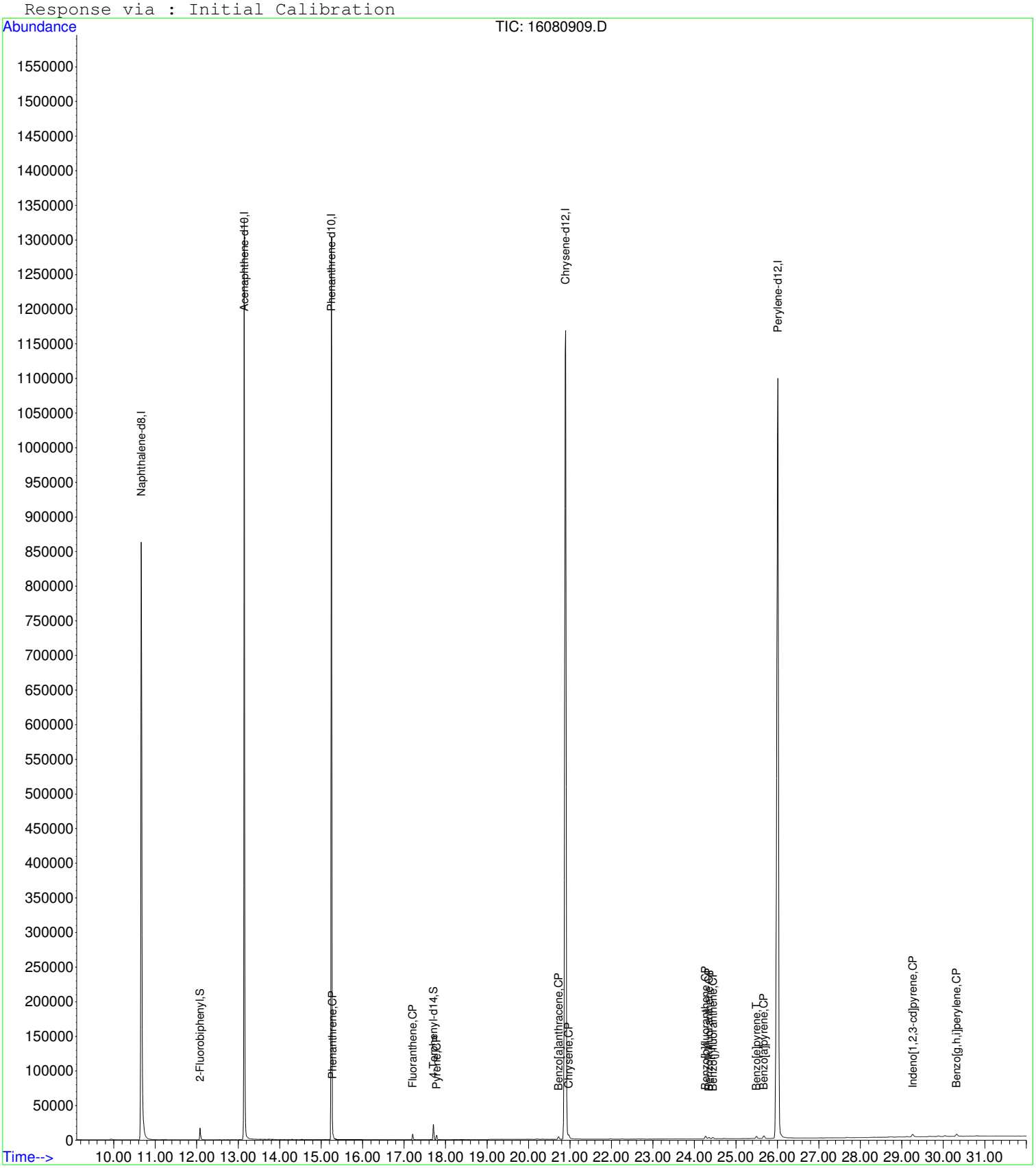
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.66	136	1420547	4000.00	ug/kg	101
5) Acenaphthene-d10	13.15	164	784797	4000.00	ug/kg	131
11) Phenanthrene-d10	15.25	188	1517906	4000.00	ug/kg	95
17) Chrysene-d12	20.89	240	2081787	4000.00	ug/kg	113
20) Perylene-d12	26.01	264	2215721	4000.00	ug/kg	115
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.08	172	21083	77.02	ug/kg	-0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.93%#		
16) 4-Terphenyl-d14	17.71	244	30687	85.67	ug/kg	-0.03
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.14%#		
Target Compounds						Qvalue
12) Phenanthrene	15.28	178	3707	10.30	ug/kg	98
14) Fluoranthene	17.21	202	9280	21.76	ug/kg	98
15) Pyrene	17.78	202	8083	18.69	ug/kg	99
18) Benzo[a]anthracene	20.72	228	5920	12.62	ug/kg	98
19) Chrysene	20.98	228	6764	14.98	ug/kg	99
21) Benzo[b]fluoranthene	24.27	252	8242	16.11	ug/kg	96
22) Benzo[k]fluoranthene	24.35	252	3701	7.89	ug/kg	99
23) Benzo(j)fluoranthene	24.45	252	3714	8.24	ug/kg	87
24) Benzo[e]pyrene	25.49	252	6459	13.01	ug/kg	95
25) Benzo[a]pyrene	25.67	252	8324	16.84	ug/kg	97
27) Indeno[1,2,3-cd]pyrene	29.26	276	7101	12.51	ug/kg	92
28) Benzo[g,h,i]perylene	30.33	276	7029	14.79	ug/kg	99

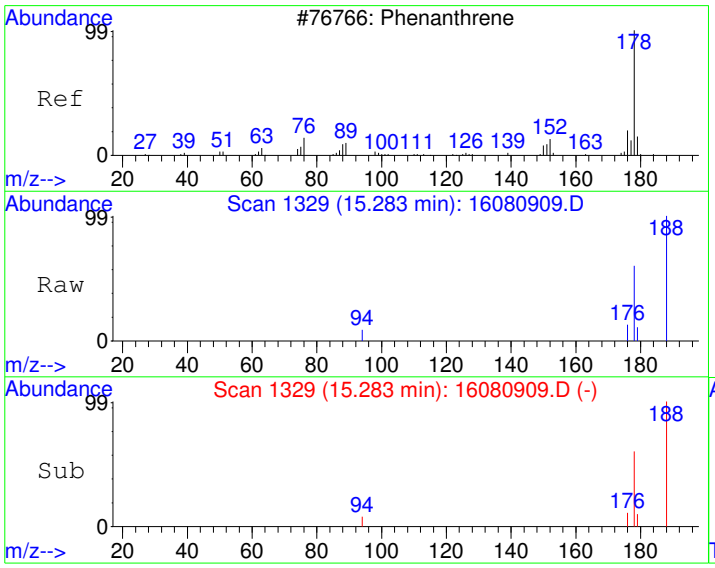
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160809\16080909.D Vial: 9
Acq On : 9 Aug 2016 1:40 pm Operator: DEW
Sample : 1607317-09A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 10 7:15 2016 Quant Results File: PP160801.RES

Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration

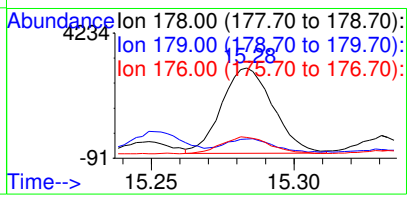


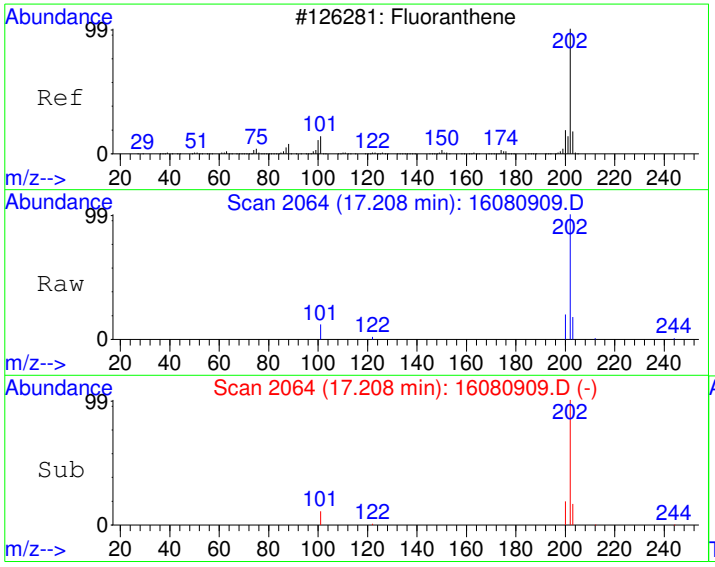


#12
Phenanthrene
Concen: 10.30 ug/kg
RT: 15.28 min Scan# 1329
Delta R.T. -0.02 min
Lab File: 16080909.D
Acq: 9 Aug 2016 1:40 pm

Tgt Ion:178 Resp: 3707

Ion	Ratio	Lower	Upper
178	100		
179	14.9	0.0	45.7
176	19.5	0.0	48.7

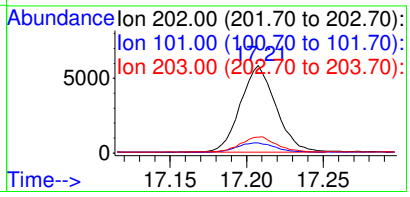


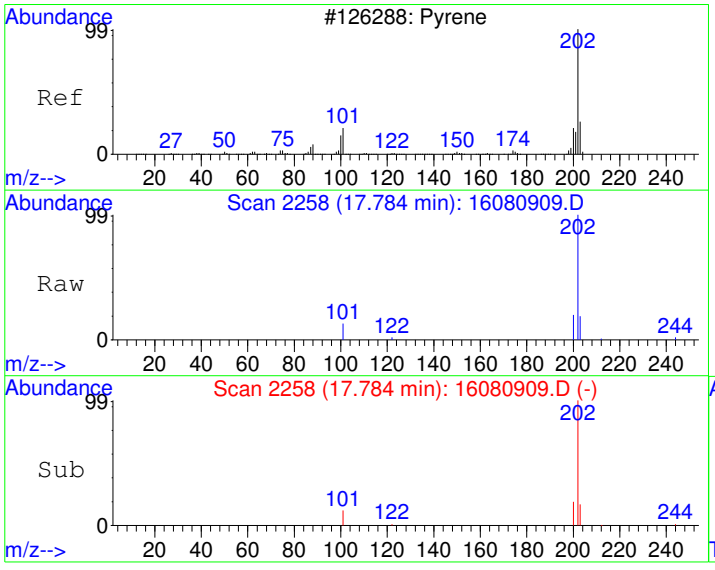


#14
Fluoranthene
Concen: 21.76 ug/kg
RT: 17.21 min Scan# 2064
Delta R.T. -0.02 min
Lab File: 16080909.D
Acq: 9 Aug 2016 1:40 pm

Tgt Ion:202 Resp: 9280

Ion	Ratio	Lower	Upper
202	100		
101	10.8	0.0	42.1
203	17.2	0.0	47.9

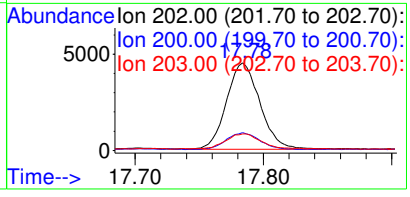


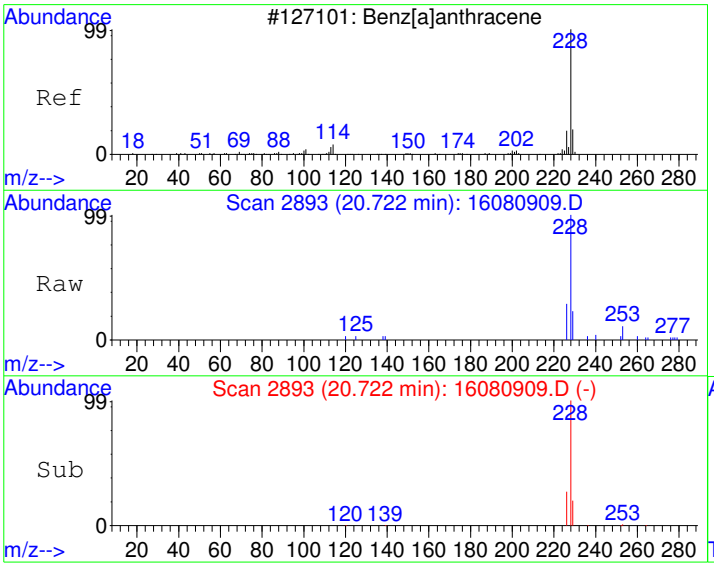


#15
Pyrene
Concen: 18.69 ug/kg
RT: 17.78 min Scan# 2258
Delta R.T. -0.03 min
Lab File: 16080909.D
Acq: 9 Aug 2016 1:40 pm

Tgt Ion:202 Resp: 8083

Ion	Ratio	Lower	Upper
202	100		
200	19.4	0.0	49.7
203	17.4	0.0	47.8

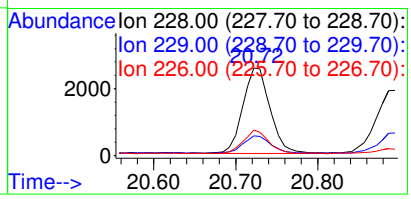


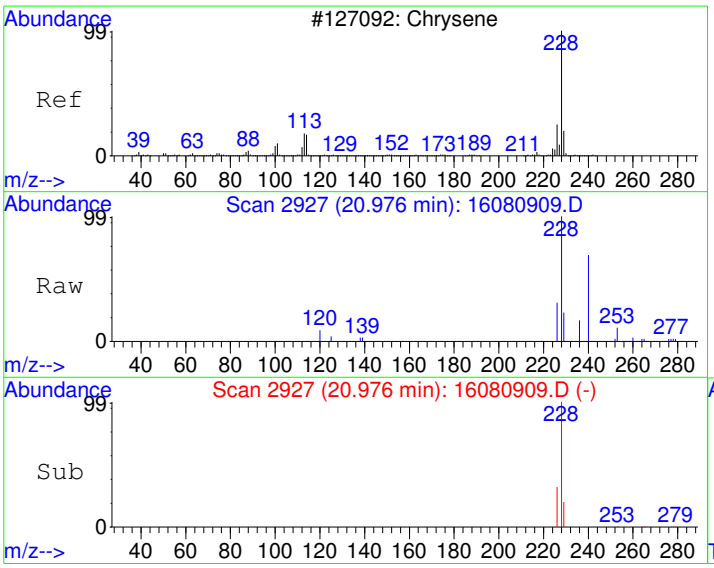


#18
Benzo[a]anthracene
Concen: 12.62 ug/kg
RT: 20.72 min Scan# 2893
Delta R.T. -0.05 min
Lab File: 16080909.D
Acq: 9 Aug 2016 1:40 pm

Tgt Ion:228 Resp: 5920

Ion	Ratio	Lower	Upper
228	100		
229	20.2	0.0	49.8
226	27.5	0.0	55.8

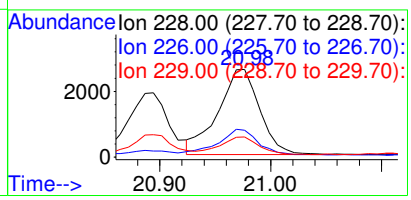


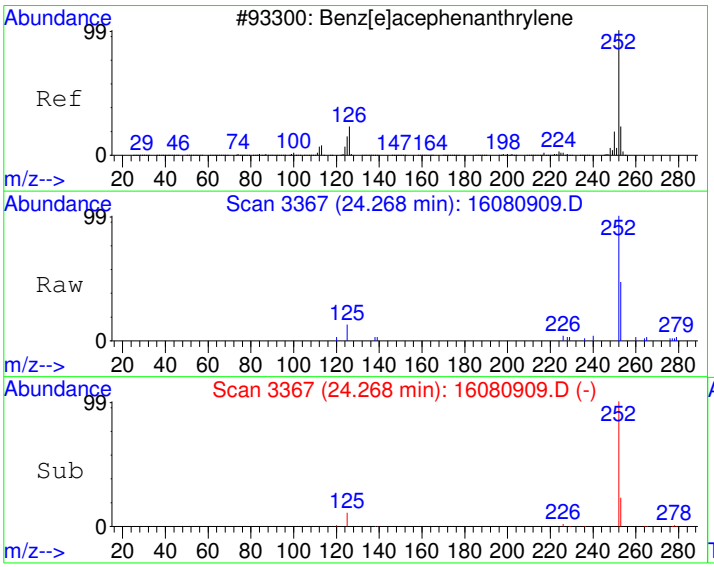


#19
Chrysene
Concen: 14.98 ug/kg
RT: 20.98 min Scan# 2927
Delta R.T. -0.05 min
Lab File: 16080909.D
Acq: 9 Aug 2016 1:40 pm

Tgt Ion:228 Resp: 6764

Ion	Ratio	Lower	Upper
228	100		
226	29.0	0.0	58.1
229	20.1	0.0	50.0

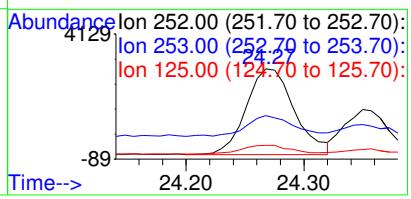


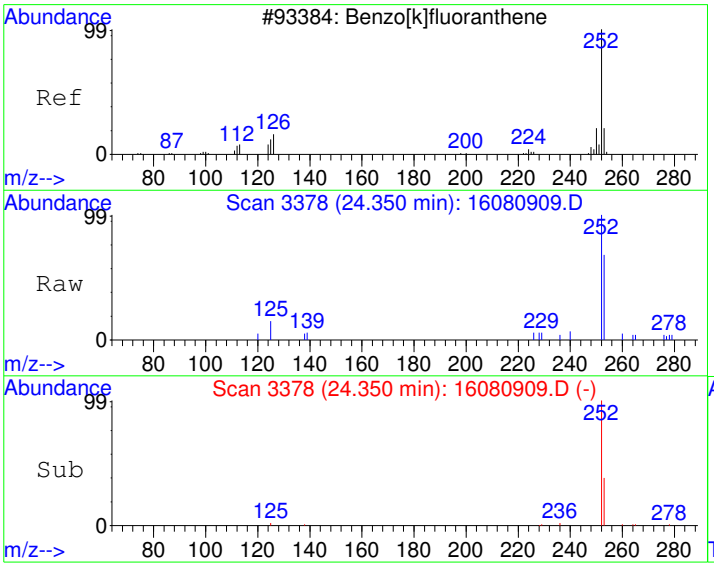


#21
Benzo[b]fluoranthene
Concen: 16.11 ug/kg
RT: 24.27 min Scan# 3367
Delta R.T. -0.06 min
Lab File: 16080909.D
Acq: 9 Aug 2016 1:40 pm

Tgt Ion:252 Resp: 8242

Ion	Ratio	Lower	Upper
252	100		
253	24.4	0.0	52.0
125	10.3	0.0	40.6

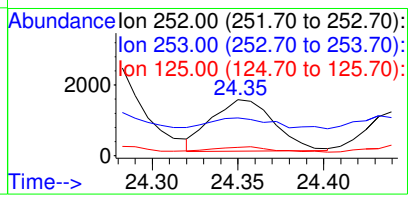


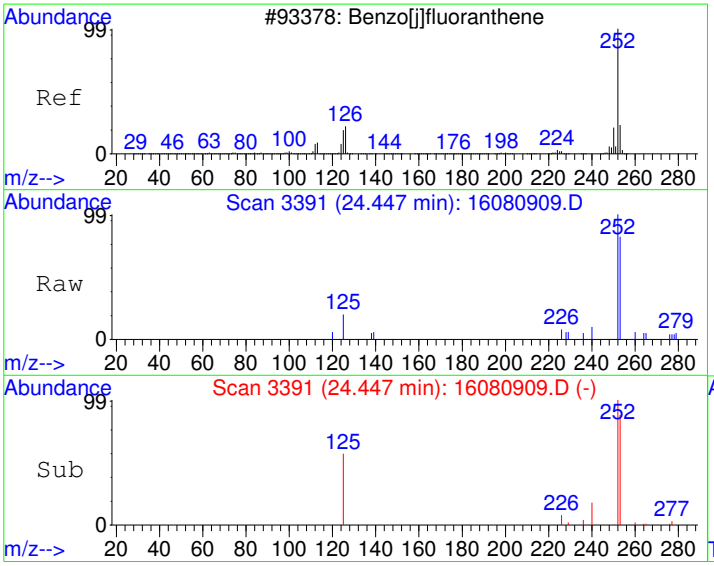


#22
Benzo[k]fluoranthene
Concen: 7.89 ug/kg
RT: 24.35 min Scan# 3378
Delta R.T. -0.06 min
Lab File: 16080909.D
Acq: 9 Aug 2016 1:40 pm

Tgt Ion:252 Resp: 3701

Ion	Ratio	Lower	Upper
252	100		
253	22.7	2.2	42.2
125	9.6	0.0	30.3

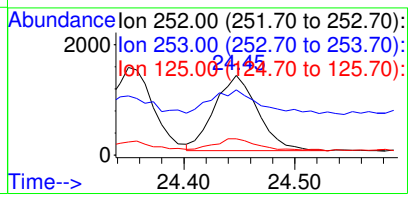


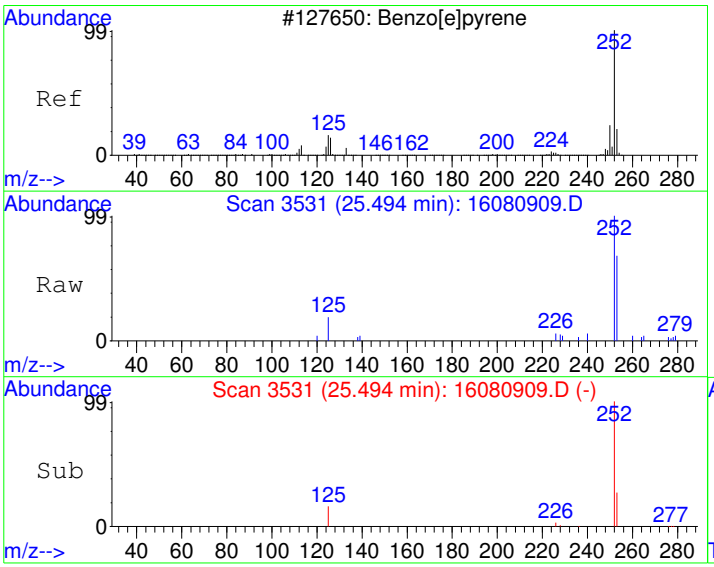


#23
Benzo(j)fluoranthene
Concen: 8.24 ug/kg
RT: 24.45 min Scan# 3391
Delta R.T. -0.06 min
Lab File: 16080909.D
Acq: 9 Aug 2016 1:40 pm

Tgt Ion:252 Resp: 3714

Ion	Ratio	Lower	Upper
252	100		
253	31.0	2.2	42.2
125	16.0	0.0	34.4

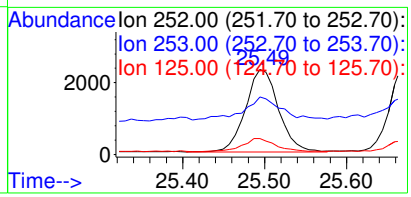


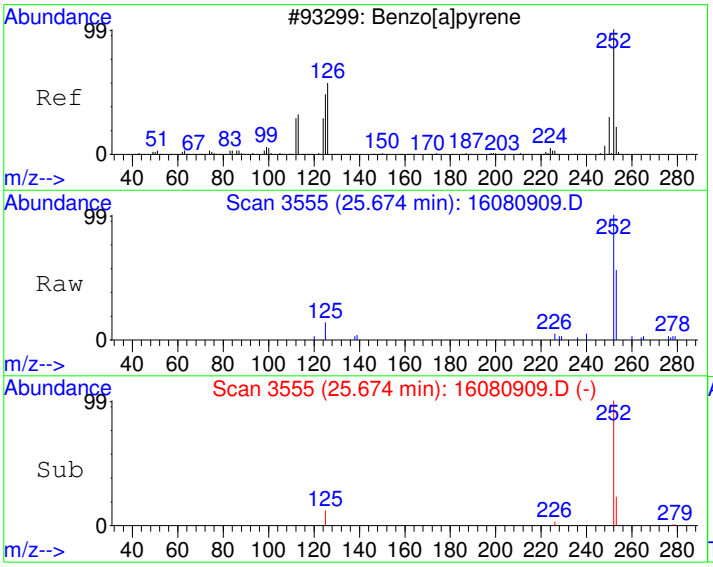


#24
Benzo[e]pyrene
Concen: 13.01 ug/kg
RT: 25.49 min Scan# 3531
Delta R.T. -0.06 min
Lab File: 16080909.D
Acq: 9 Aug 2016 1:40 pm

Tgt Ion:252 Resp: 6459

Ion	Ratio	Lower	Upper
252	100		
253	26.6	2.2	42.2
125	15.5	0.0	35.7

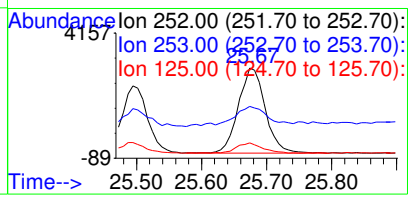


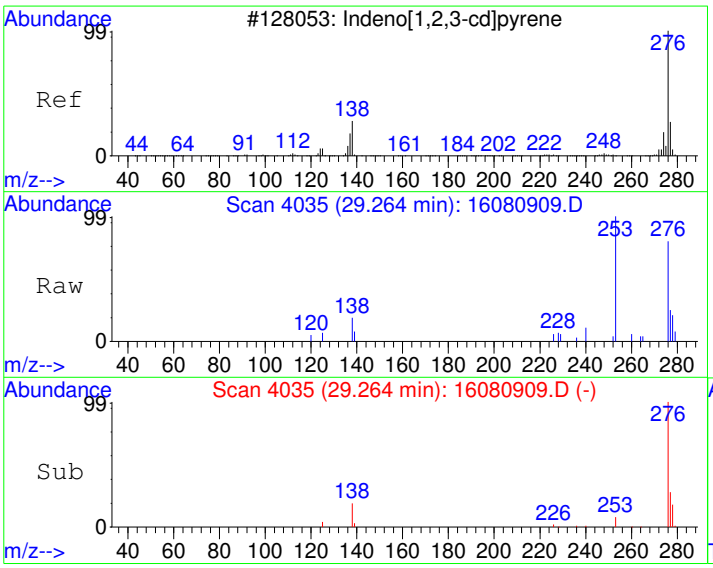


#25
Benzo[a]pyrene
Concen: 16.84 ug/kg
RT: 25.67 min Scan# 3555
Delta R.T. -0.06 min
Lab File: 16080909.D
Acq: 9 Aug 2016 1:40 pm

Tgt Ion:252 Resp: 8324

Ion	Ratio	Lower	Upper
252	100		
253	23.6	2.0	42.0
125	12.3	0.0	31.6

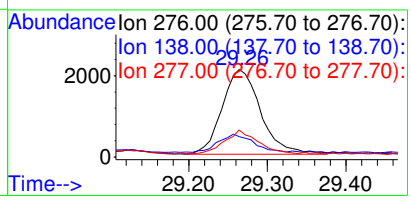


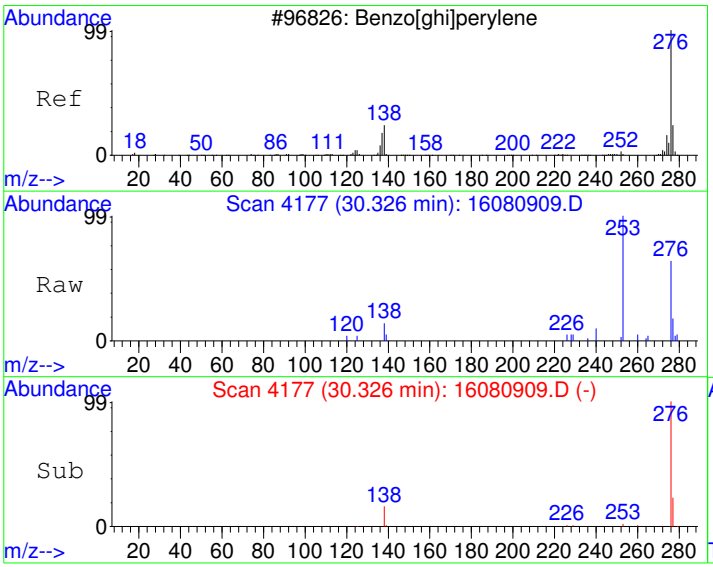


#27
Indeno[1,2,3-cd]pyrene
Concen: 12.51 ug/kg
RT: 29.26 min Scan# 4035
Delta R.T. -0.06 min
Lab File: 16080909.D
Acq: 9 Aug 2016 1:40 pm

Tgt Ion:276 Resp: 7101

Ion	Ratio	Lower	Upper
276	100		
138	19.5	4.8	44.8
277	28.1	5.6	45.6

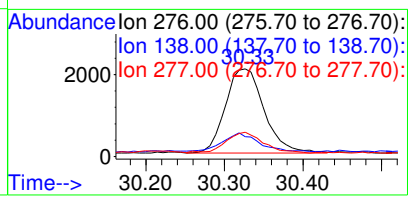




#28
Benzo[g,h,i]perylene
Concen: 14.79 ug/kg
RT: 30.33 min Scan# 4177
Delta R.T. -0.07 min
Lab File: 16080909.D
Acq: 9 Aug 2016 1:40 pm

Tgt Ion:276 Resp: 7029

Ion	Ratio	Lower	Upper
276	100		
138	17.0	0.0	38.1
277	24.4	4.1	44.1



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160809\16080910.D Vial: 10
Acq On : 9 Aug 2016 2:22 pm Operator: DEW
Sample : 1607317-10A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 10 7:15 2016 Quant Results File: PP160801.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration
DataAcq Meth : PP160801

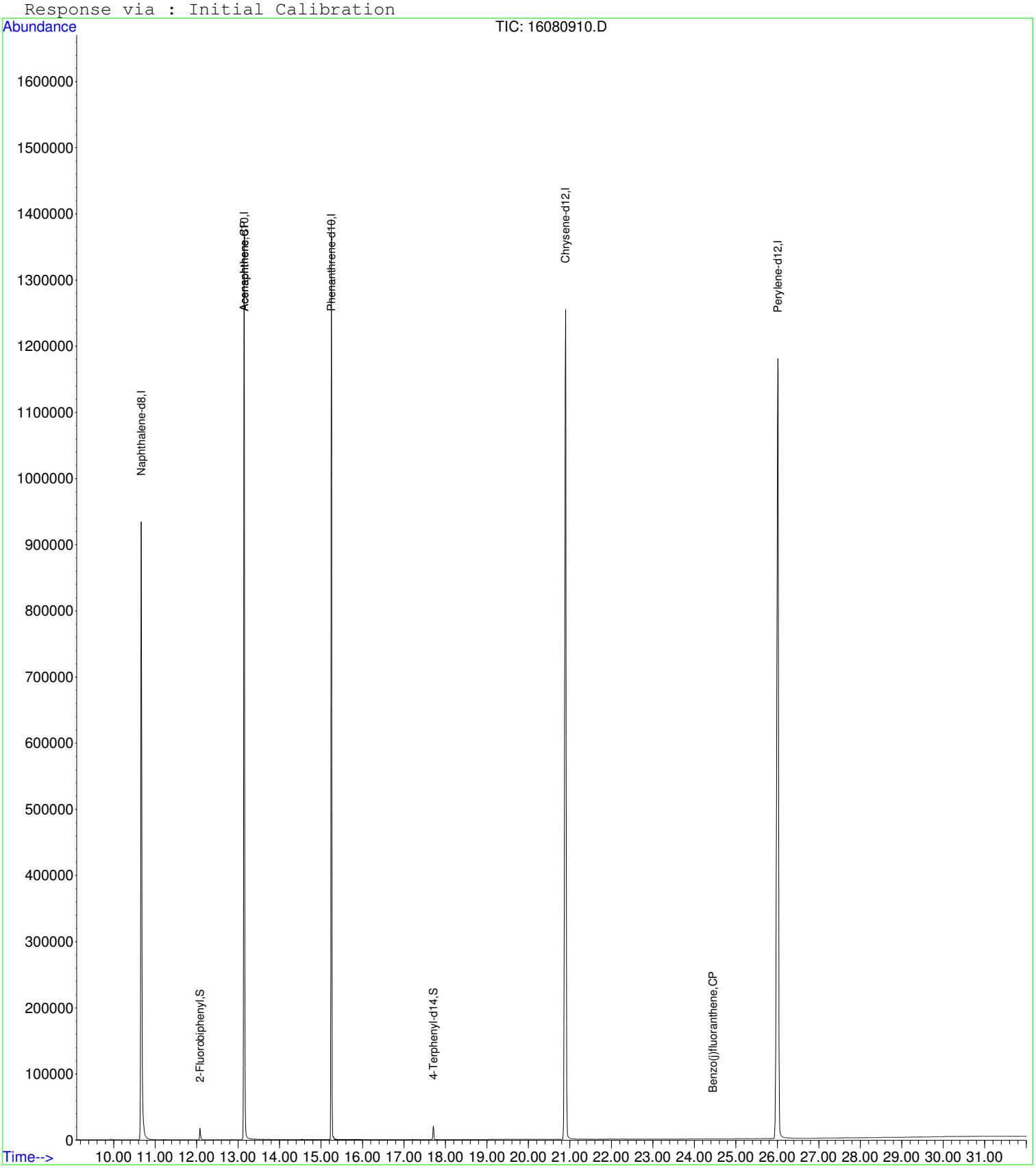
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.67	136	1512349	4000.00	ug/kg	108
5) Acenaphthene-d10	13.15	164	840245	4000.00	ug/kg	140
11) Phenanthrene-d10	15.25	188	1593658	4000.00	ug/kg	100
17) Chrysene-d12	20.89	240	2209864	4000.00	ug/kg	120
20) Perylene-d12	26.01	264	2372057	4000.00	ug/kg	123
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.08	172	20812	71.01	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.78%#		
16) 4-Terphenyl-d14	17.71	244	29903	79.51	ug/kg	-0.03
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.99%#		
Target Compounds						Qvalue
9) Acenaphthene	13.15	154	2897	~~13.44~~	~~ug/kg#~~	~~11~~
23) Benzo(j)fluoranthene	24.45	252	242	0.50	ug/kg#	58

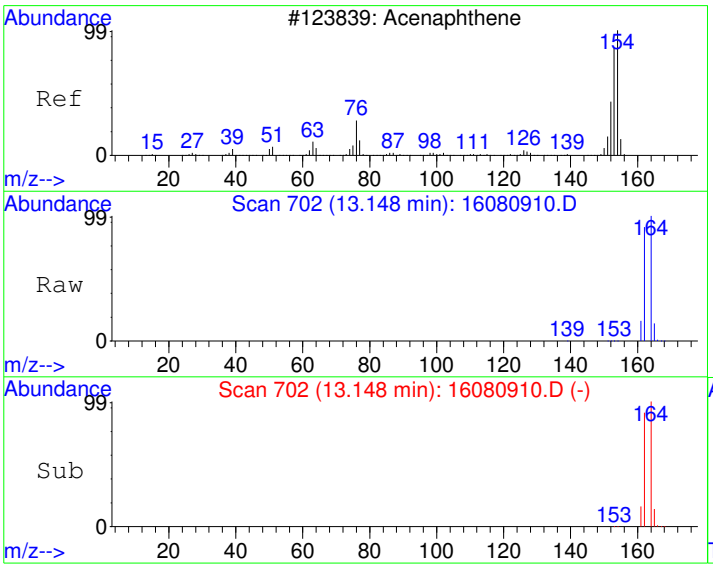
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160809\16080910.D Vial: 10
Acq On : 9 Aug 2016 2:22 pm Operator: DEW
Sample : 1607317-10A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 10 7:15 2016 Quant Results File: PP160801.RES

Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration

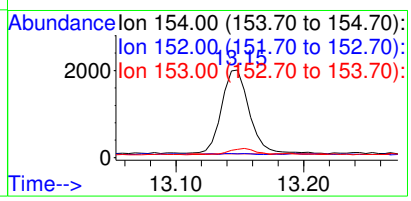


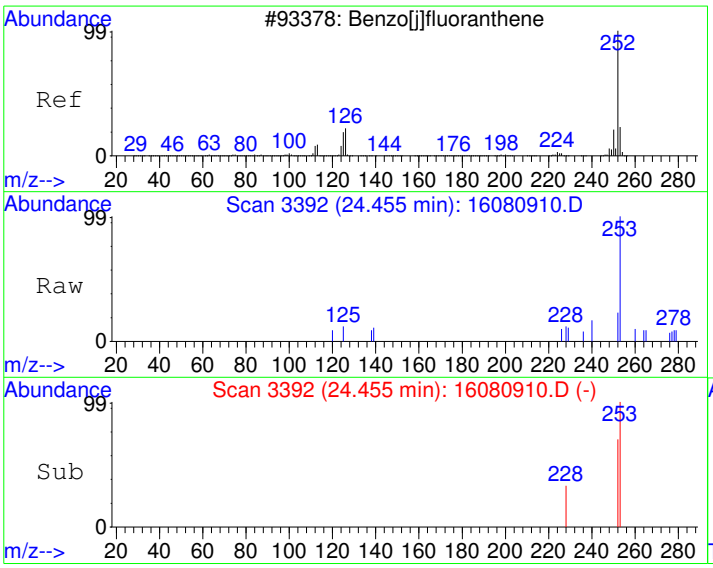


#9
Acenaphthene
Concen: 13.44 ug/kg
RT: 13.15 min Scan# 702
Delta R.T. -0.06 min
Lab File: 16080910.D
Acq: 9 Aug 2016 2:22 pm

Tgt Ion:154 Resp: 2897

Ion	Ratio	Lower	Upper
154	100		
152	0.5	19.1	79.1#
153	6.2	76.2	136.2#

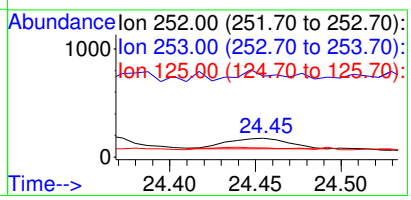




#23
Benzo(j)fluoranthene
Concen: 0.50 ug/kg
RT: 24.45 min Scan# 3392
Delta R.T. -0.05 min
Lab File: 16080910.D
Acq: 9 Aug 2016 2:22 pm

Tgt Ion:252 Resp: 242

Ion	Ratio	Lower	Upper
252	100		
253	52.1	2.2	42.2#
125	18.8	0.0	34.4



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160809\16080911.D Vial: 11
Acq On : 9 Aug 2016 3:03 pm Operator: DEW
Sample : 1607317-11A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 10 7:15 2016 Quant Results File: PP160801.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration
DataAcq Meth : PP160801

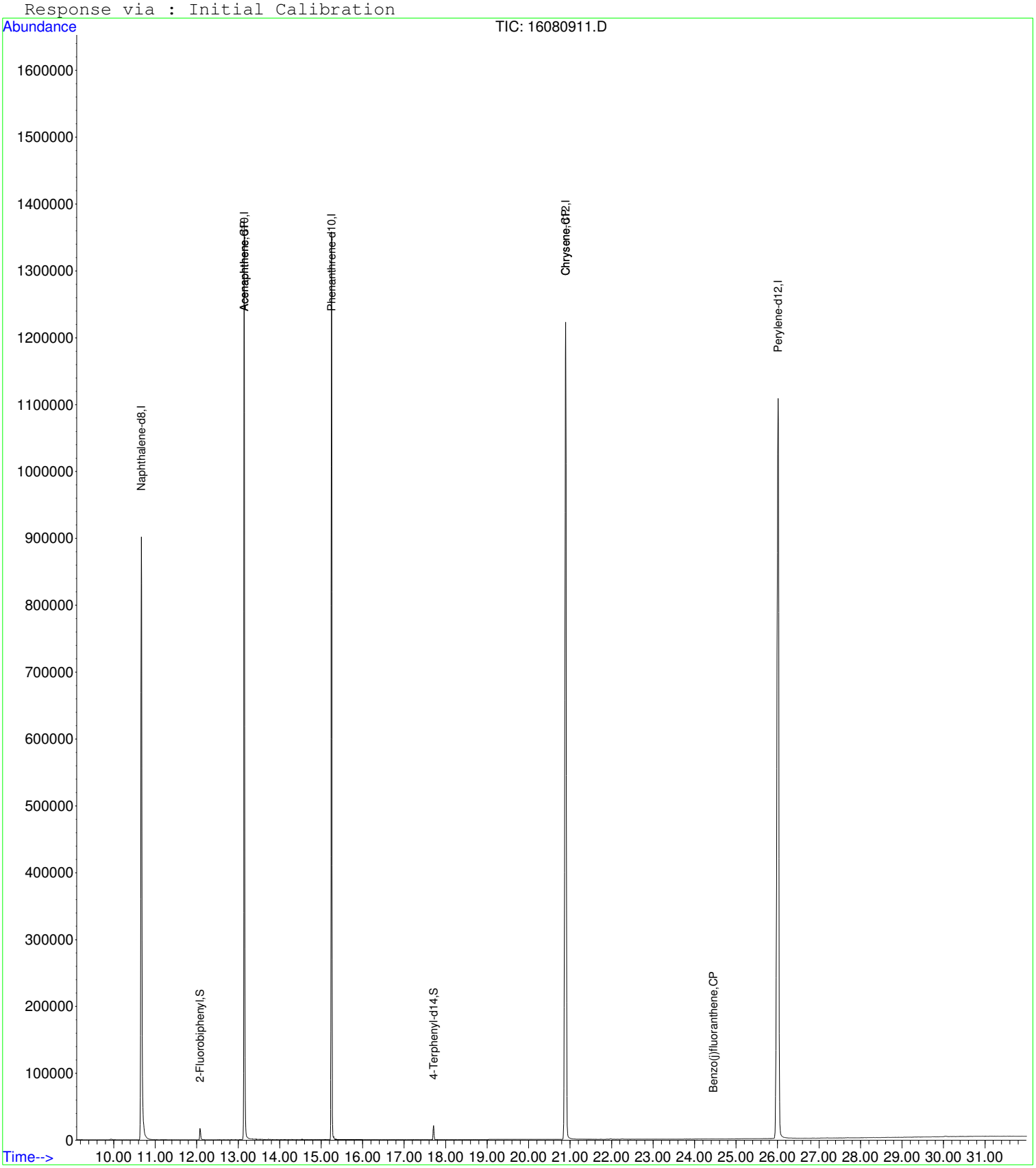
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.66	136	1477426	4000.00	ug/kg	105
5) Acenaphthene-d10	13.15	164	826377	4000.00	ug/kg	138
11) Phenanthrene-d10	15.25	188	1583707	4000.00	ug/kg	100
17) Chrysene-d12	20.90	240	2181772	4000.00	ug/kg	119
20) Perylene-d12	26.01	264	2337511	4000.00	ug/kg	121
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.08	172	20608	71.49	ug/kg	-0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.79%#		
16) 4-Terphenyl-d14	17.71	244	30097	80.53	ug/kg	-0.03
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.01%#		
Target Compounds						Qvalue
9) Acenaphthene	13.15	154	2815	~~13.28~~	~~ug/kg#~~	~~11~~
19) Chrysene	20.90	228	4646	~~9.82~~	~~ug/kg~~	~~72~~
23) Benzo(j)fluoranthene	24.45	252	24	0.05	ug/kg#	1

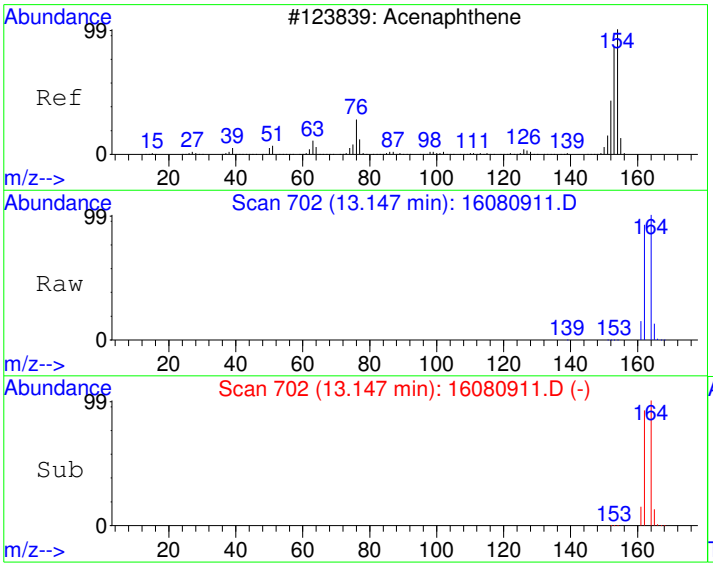
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160809\16080911.D Vial: 11
Acq On : 9 Aug 2016 3:03 pm Operator: DEW
Sample : 1607317-11A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 10 7:15 2016 Quant Results File: PP160801.RES

Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration

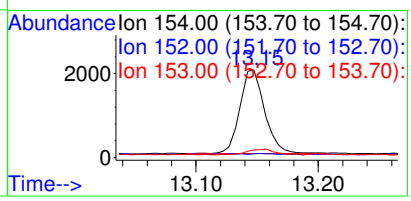


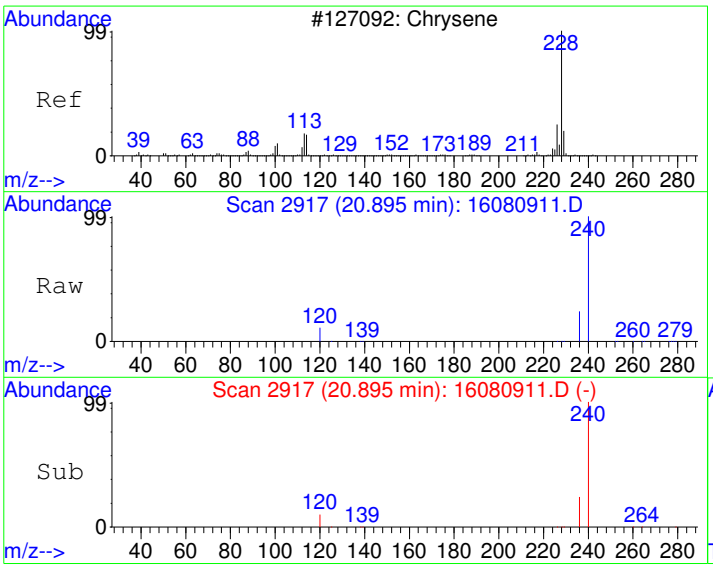


#9
Acenaphthene
Concen: 13.28 ug/kg
RT: 13.15 min Scan# 702
Delta R.T. -0.06 min
Lab File: 16080911.D
Acq: 9 Aug 2016 3:03 pm

Tgt Ion:154 Resp: 2815

Ion	Ratio	Lower	Upper
154	100		
152	0.9	19.1	79.1#
153	5.1	76.2	136.2#

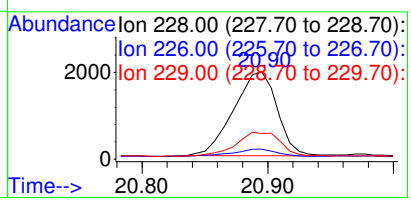


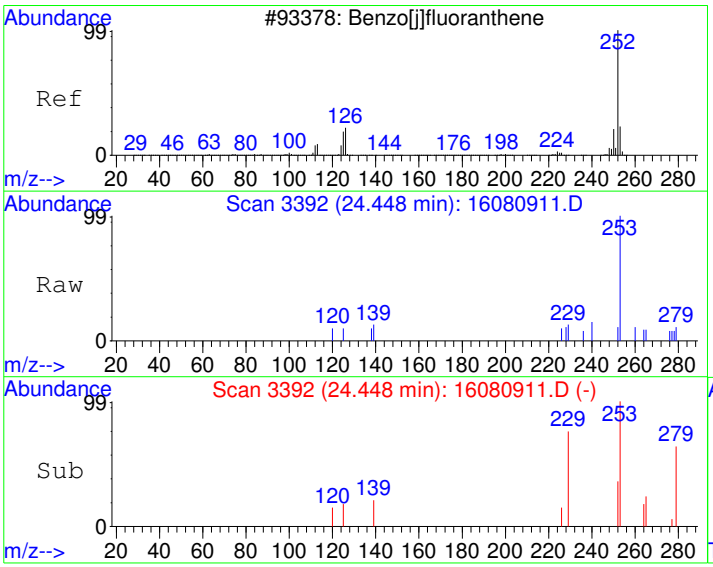


#19
Chrysene
Concen: 9.82 ug/kg
RT: 20.90 min Scan# 2917
Delta R.T. -0.13 min
Lab File: 16080911.D
Acq: 9 Aug 2016 3:03 pm

Tgt Ion:228 Resp: 4646

Ion	Ratio	Lower	Upper
228	100		
226	8.6	0.0	58.1
229	26.9	0.0	50.0

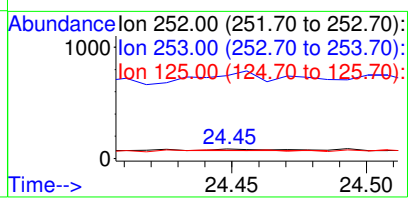




#23
Benzo(j)fluoranthene
Concen: 0.05 ug/kg
RT: 24.45 min Scan# 3392
Delta R.T. -0.06 min
Lab File: 16080911.D
Acq: 9 Aug 2016 3:03 pm

Tgt Ion:252 Resp: 24

Ion	Ratio	Lower	Upper
252	100		
253	242.9	2.2	42.2#
125	78.6	0.0	34.4#



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160809\16080912.D Vial: 12
Acq On : 9 Aug 2016 3:45 pm Operator: DEW
Sample : 1607317-12A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 10 7:15 2016 Quant Results File: PP160801.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration
DataAcq Meth : PP160801

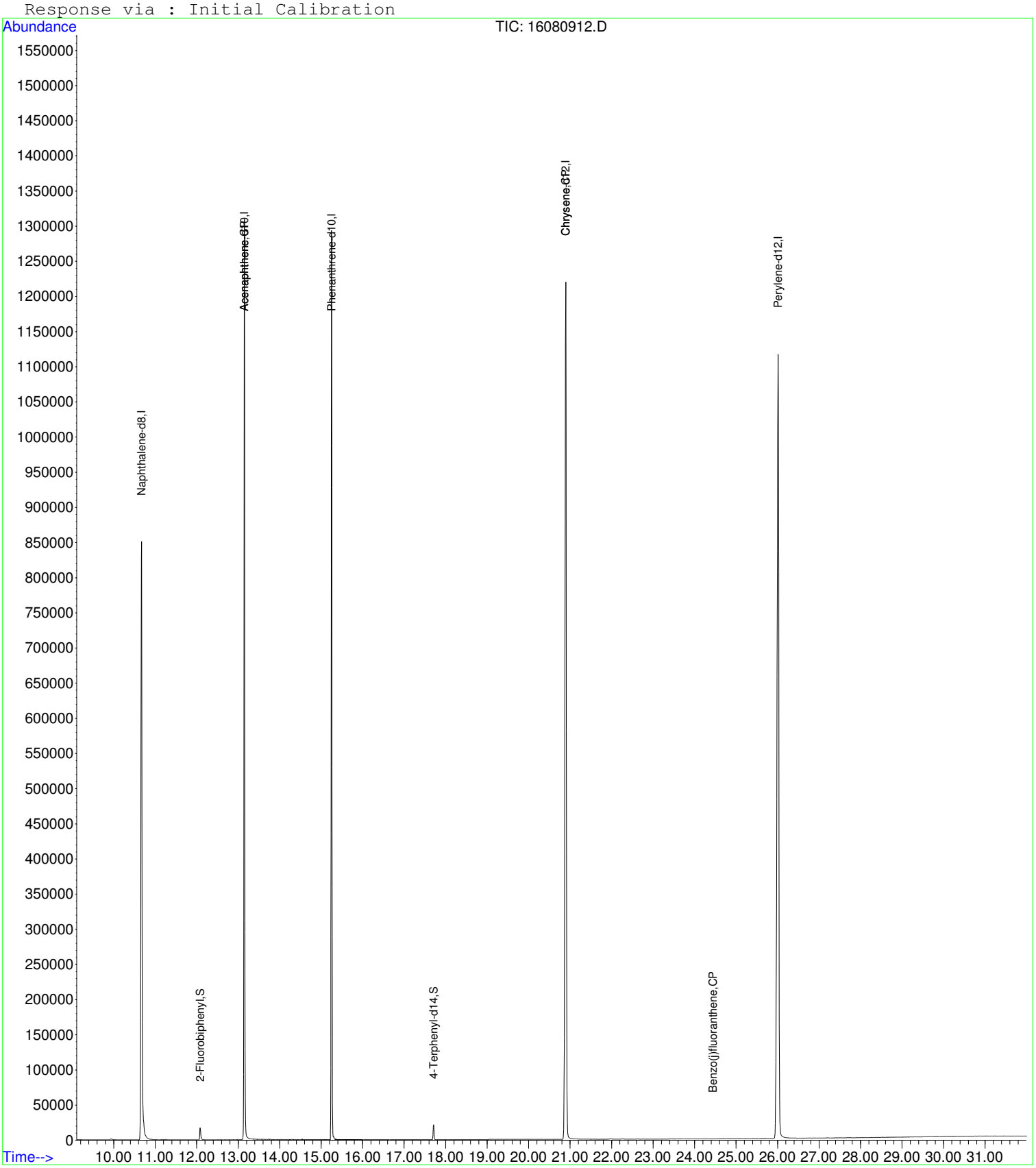
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.67	136	1425252	4000.00	ug/kg	102
5) Acenaphthene-d10	13.15	164	786308	4000.00	ug/kg	131
11) Phenanthrene-d10	15.25	188	1499977	4000.00	ug/kg	94
17) Chrysene-d12	20.89	240	2100744	4000.00	ug/kg	115
20) Perylene-d12	26.01	264	2245633	4000.00	ug/kg	116
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.08	172	21265	77.53	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.94%#		
16) 4-Terphenyl-d14	17.71	244	29905	84.48	ug/kg	-0.03
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.11%#		
Target Compounds						Qvalue
9) Acenaphthene	13.14	154	2769	~~13.73~~	~~ug/kg#~~	~~10~~
19) Chrysene	20.89	228	4557	~~10.00~~	~~ug/kg~~	~~70~~
23) Benzo(j)fluoranthene	24.45	252	15	0.03	ug/kg#	1

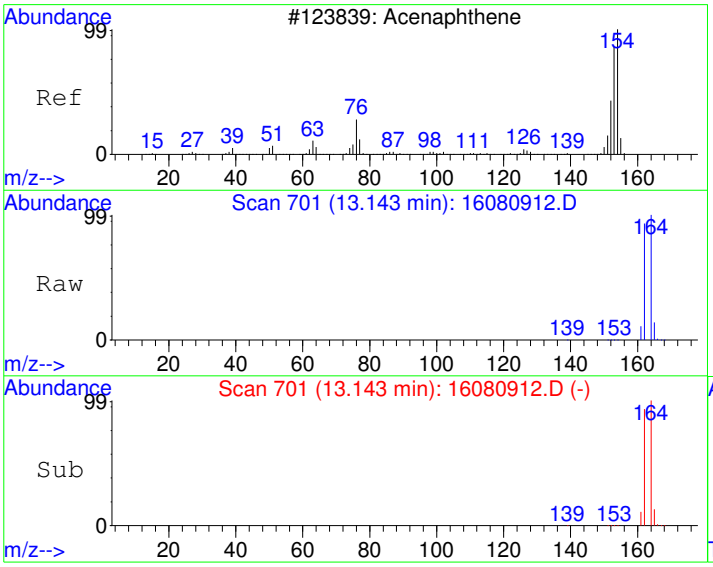
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160809\16080912.D Vial: 12
Acq On : 9 Aug 2016 3:45 pm Operator: DEW
Sample : 1607317-12A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 10 7:15 2016 Quant Results File: PP160801.RES

Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration

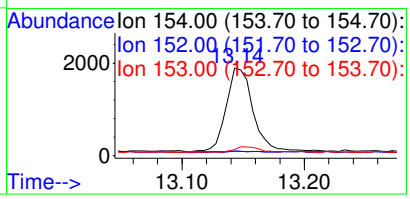


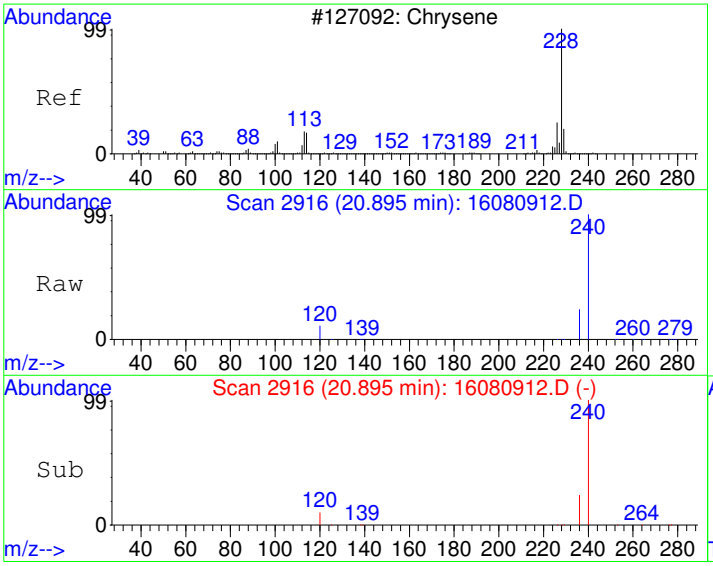


#9
Acenaphthene
Concen: 13.73 ug/kg
RT: 13.14 min Scan# 701
Delta R.T. -0.07 min
Lab File: 16080912.D
Acq: 9 Aug 2016 3:45 pm

Tgt Ion:154 Resp: 2769

Ion	Ratio	Lower	Upper
154	100		
152	1.3	19.1	79.1#
153	3.1	76.2	136.2#

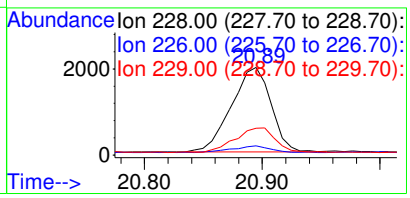


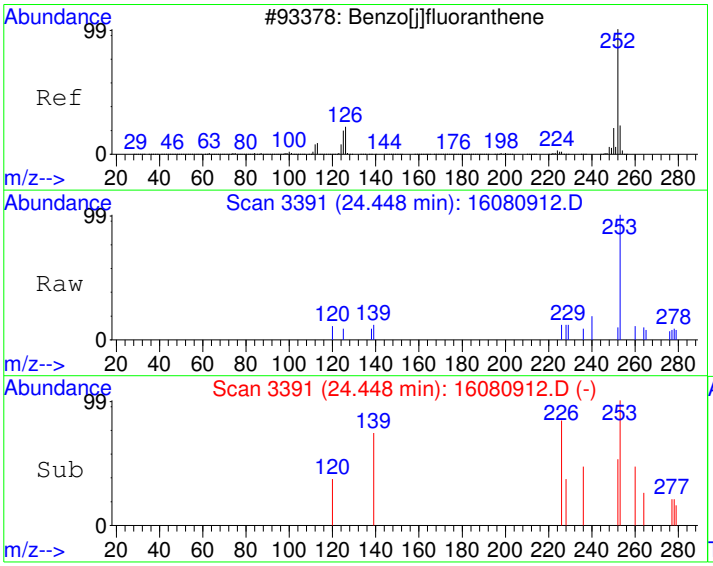


#19
Chrysene
Concen: 10.00 ug/kg
RT: 20.89 min Scan# 2916
Delta R.T. -0.13 min
Lab File: 16080912.D
Acq: 9 Aug 2016 3:45 pm

Tgt Ion:228 Resp: 4557

Ion	Ratio	Lower	Upper
228	100		
226	7.9	0.0	58.1
229	28.4	0.0	50.0

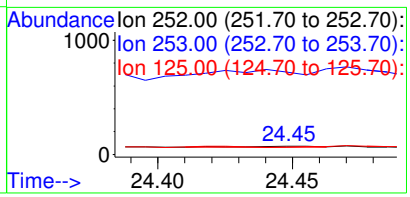




#23
Benzo(j)fluoranthene
Concen: 0.03 ug/kg
RT: 24.45 min Scan# 3391
Delta R.T. -0.06 min
Lab File: 16080912.D
Acq: 9 Aug 2016 3:45 pm

Tgt Ion:252 Resp: 15

Ion	Ratio	Lower	Upper
252	100		
253	337.5	2.2	42.2#
125	0.0	0.0	34.4



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160809\16080913.D Vial: 13
Acq On : 9 Aug 2016 4:26 pm Operator: DEW
Sample : 1607317-14A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 10 7:15 2016 Quant Results File: PP160801.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration
DataAcq Meth : PP160801

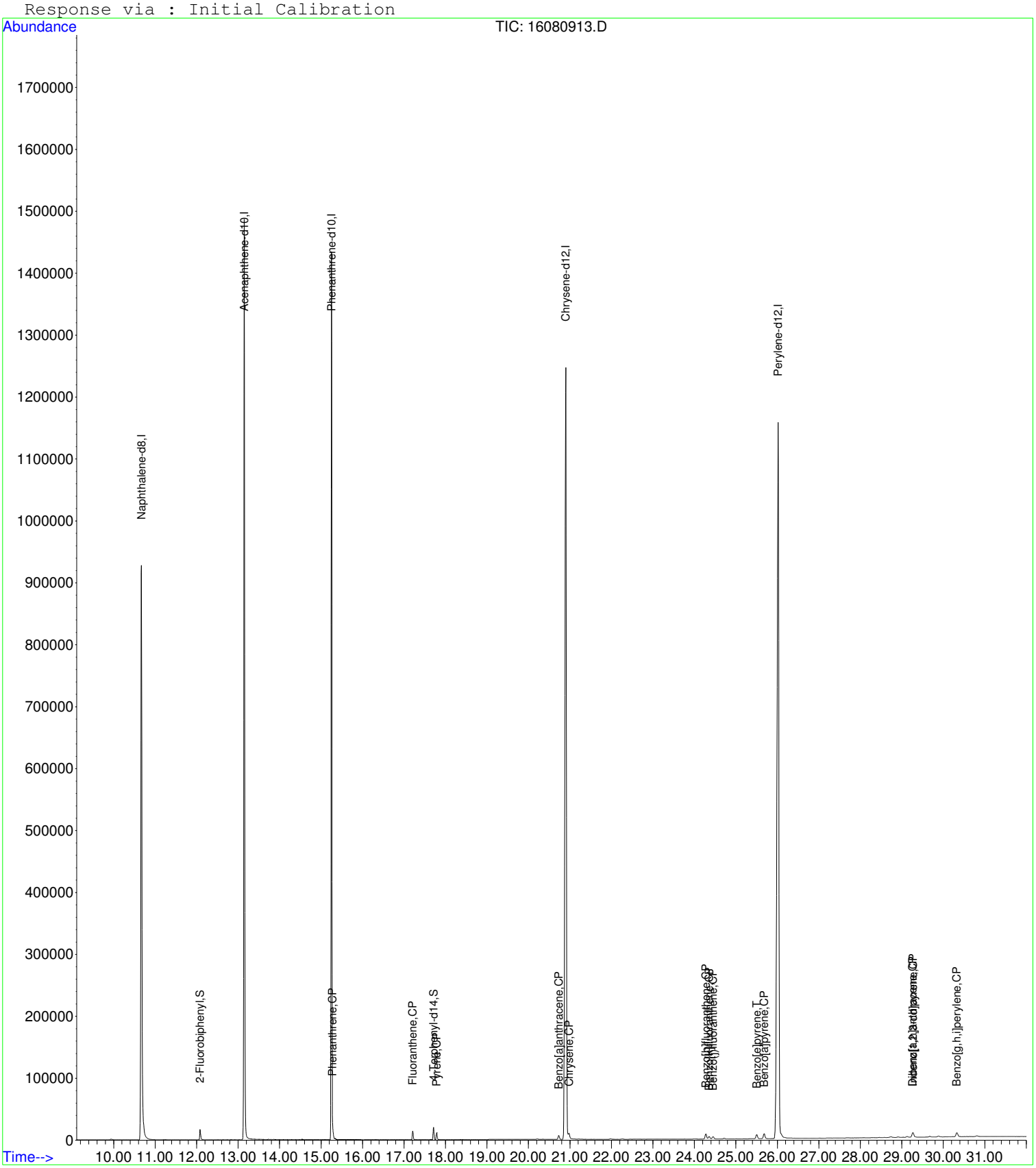
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.67	136	1560339	4000.00	ug/kg	111
5) Acenaphthene-d10	13.15	164	868559	4000.00	ug/kg	145
11) Phenanthrene-d10	15.25	188	1663431	4000.00	ug/kg	105
17) Chrysene-d12	20.90	240	2241318	4000.00	ug/kg	122
20) Perylene-d12	26.02	264	2387590	4000.00	ug/kg	124
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.08	172	21110	69.68	ug/kg	-0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery = 1.74%#			
16) 4-Terphenyl-d14	17.71	244	29818	75.96	ug/kg	-0.03
Spiked Amount 4000.000	Range 40 - 140		Recovery = 1.90%#			
Target Compounds						Qvalue
12) Phenanthrene	15.29	178	9485	24.05	ug/kg	98
14) Fluoranthene	17.21	202	16273	34.82	ug/kg	97
15) Pyrene	17.79	202	14205	29.97	ug/kg	100
18) Benzo[a]anthracene	20.73	228	10354	20.50	ug/kg	99
19) Chrysene	20.98	228	12927	26.60	ug/kg	98
21) Benzo[b]fluoranthene	24.27	252	17004	30.85	ug/kg	96
22) Benzo[k]fluoranthene	24.36	252	7804	15.43	ug/kg	88
23) Benzo(j)fluoranthene	24.45	252	7234	14.89	ug/kg	86
24) Benzo[e]pyrene	25.50	252	13397	25.05	ug/kg	98
25) Benzo[a]pyrene	25.68	252	16540	31.06	ug/kg	100
26) Dibenz[a,h]anthracene	29.26	278	3180	6.17	ug/kg	95
27) Indeno[1,2,3-cd]pyrene	29.27	276	14244	23.29	ug/kg	94
28) Benzo[g,h,i]perylene	30.33	276	14306	27.93	ug/kg	98

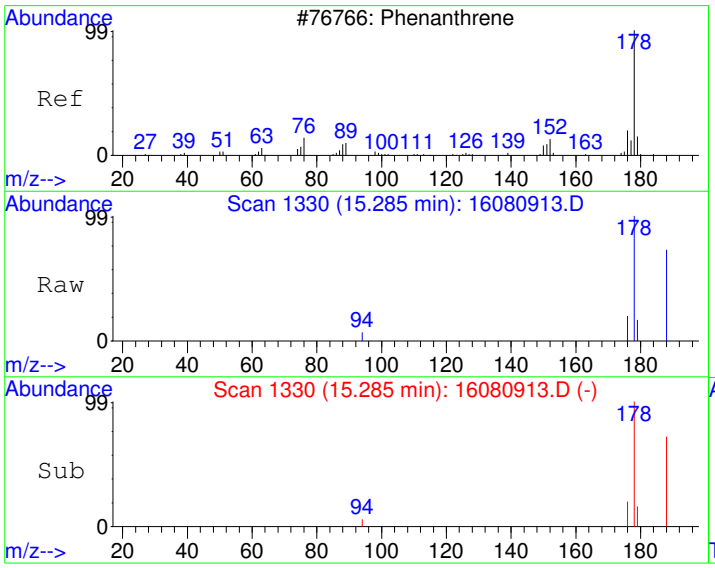
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160809\16080913.D Vial: 13
Acq On : 9 Aug 2016 4:26 pm Operator: DEW
Sample : 1607317-14A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 10 7:15 2016 Quant Results File: PP160801.RES

Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration

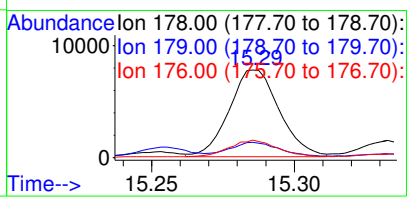


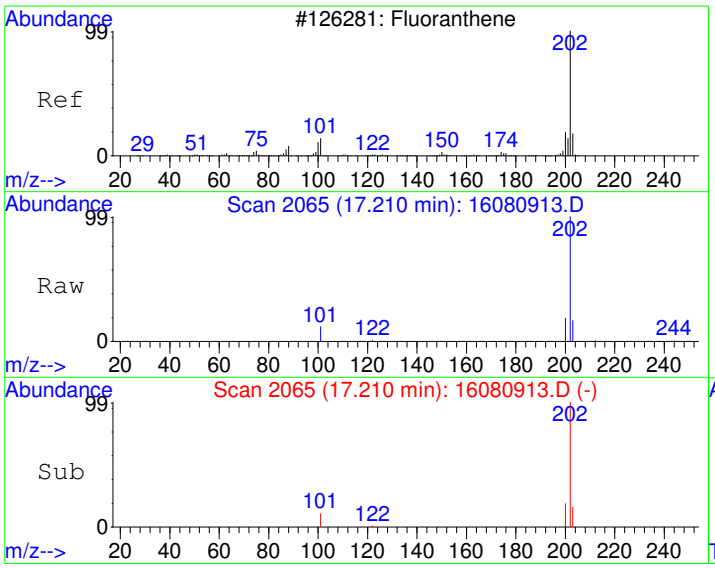


#12
Phenanthrene
Concen: 24.05 ug/kg
RT: 15.29 min Scan# 1330
Delta R.T. -0.02 min
Lab File: 16080913.D
Acq: 9 Aug 2016 4:26 pm

Tgt Ion:178 Resp: 9485

Ion	Ratio	Lower	Upper
178	100		
179	16.2	0.0	45.7
176	20.0	0.0	48.7

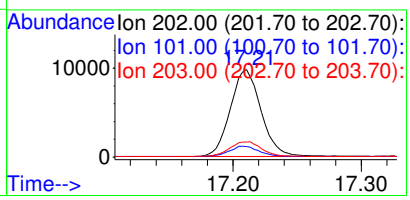


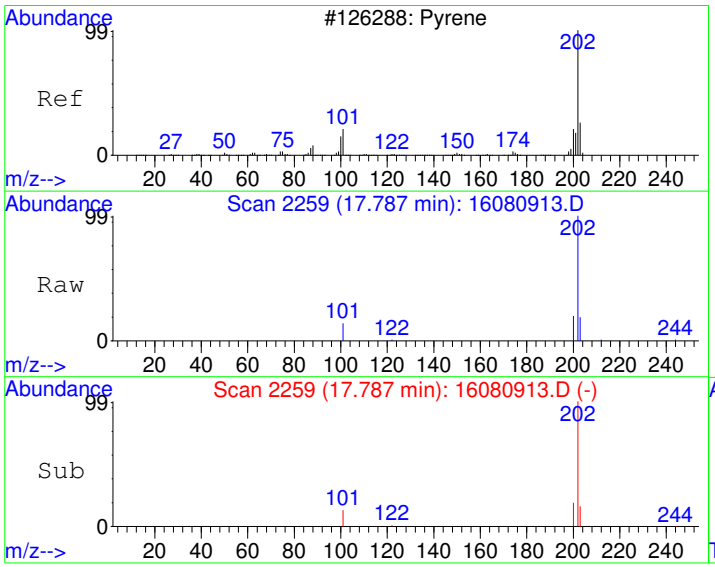


#14
Fluoranthene
Concen: 34.82 ug/kg
RT: 17.21 min Scan# 2065
Delta R.T. -0.02 min
Lab File: 16080913.D
Acq: 9 Aug 2016 4:26 pm

Tgt Ion:202 Resp: 16273

Ion	Ratio	Lower	Upper
202	100		
101	11.5	0.0	42.1
203	16.3	0.0	47.9

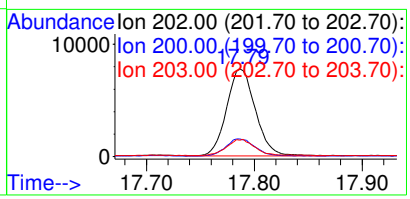


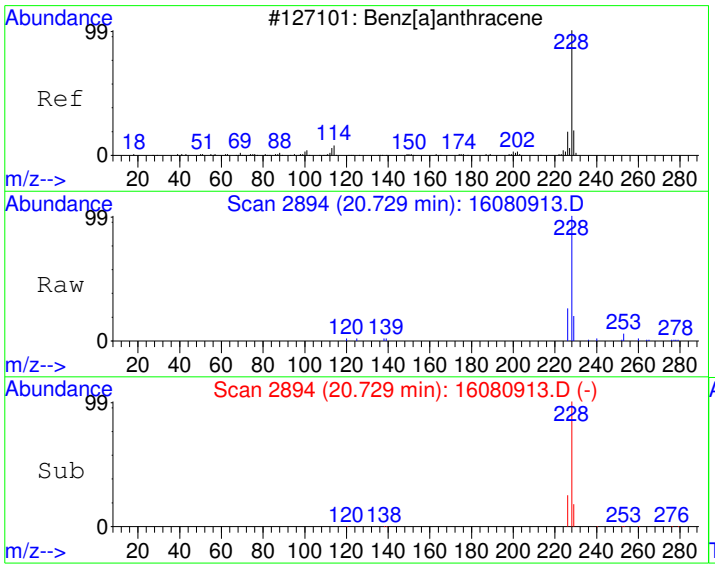


#15
Pyrene
Concen: 29.97 ug/kg
RT: 17.79 min Scan# 2259
Delta R.T. -0.03 min
Lab File: 16080913.D
Acq: 9 Aug 2016 4:26 pm

Tgt Ion:202 Resp: 14205

Ion	Ratio	Lower	Upper
202	100		
200	19.6	0.0	49.7
203	17.7	0.0	47.8

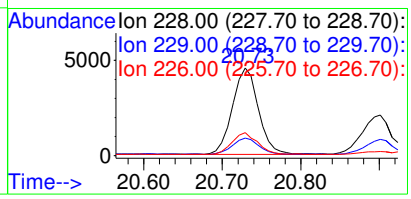


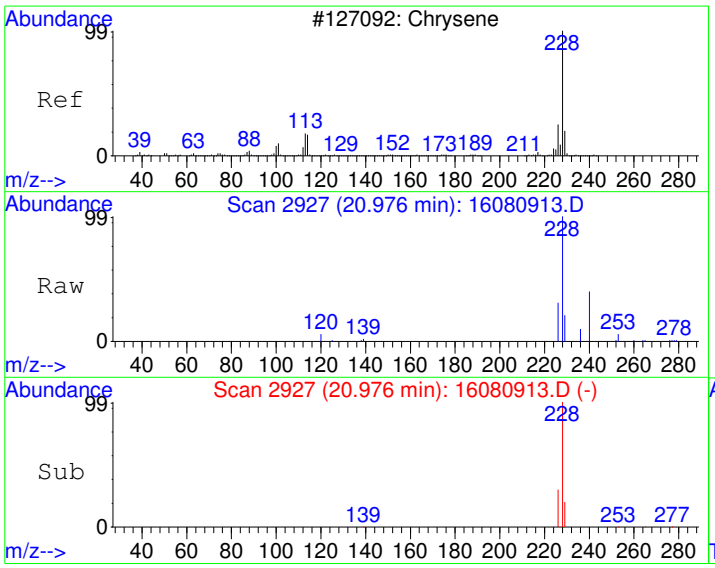


#18
Benzo[a]anthracene
Concen: 20.50 ug/kg
RT: 20.73 min Scan# 2894
Delta R.T. -0.04 min
Lab File: 16080913.D
Acq: 9 Aug 2016 4:26 pm

Tgt Ion:228 Resp: 10354

Ion	Ratio	Lower	Upper
228	100		
229	18.9	0.0	49.8
226	25.4	0.0	55.8

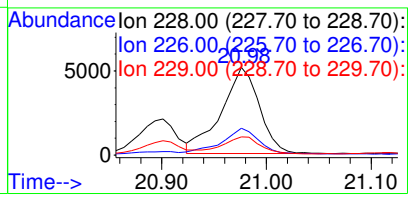


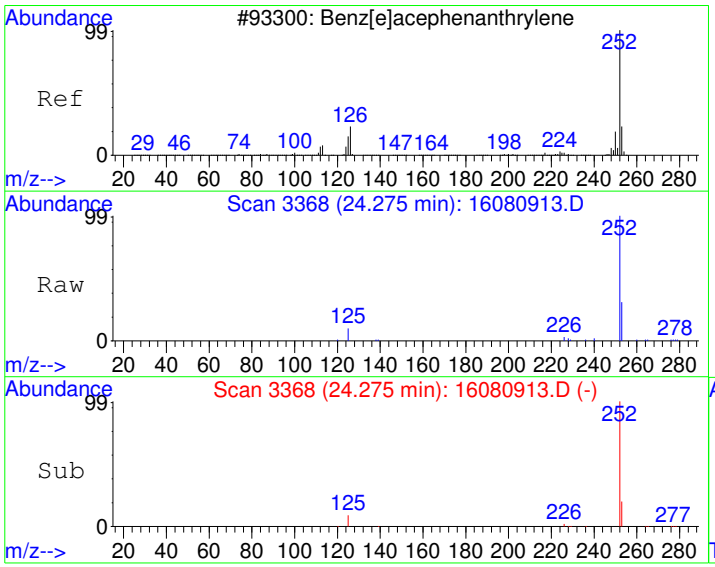


#19
Chrysene
Concen: 26.60 ug/kg
RT: 20.98 min Scan# 2927
Delta R.T. -0.05 min
Lab File: 16080913.D
Acq: 9 Aug 2016 4:26 pm

Tgt Ion:228 Resp: 12927

Ion	Ratio	Lower	Upper
228	100		
226	29.6	0.0	58.1
229	19.6	0.0	50.0

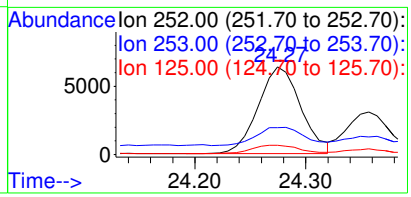


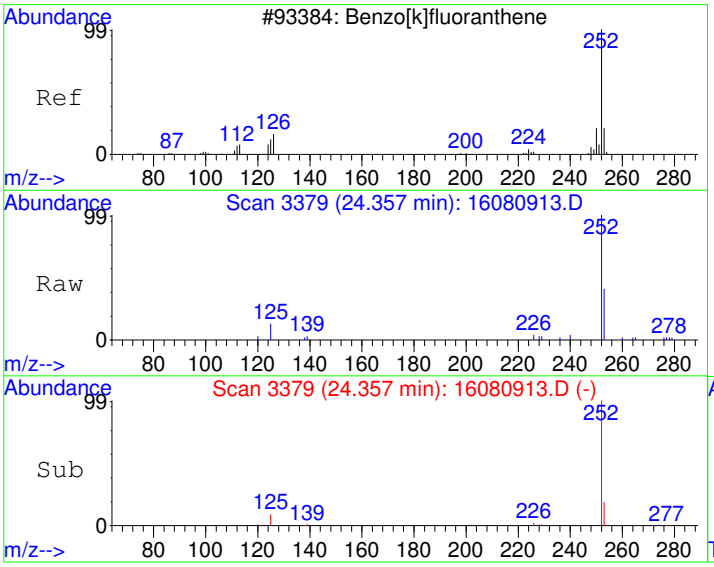


#21
Benzo[b]fluoranthene
Concen: 30.85 ug/kg
RT: 24.27 min Scan# 3368
Delta R.T. -0.05 min
Lab File: 16080913.D
Acq: 9 Aug 2016 4:26 pm

Tgt Ion:252 Resp: 17004

Ion	Ratio	Lower	Upper
252	100		
253	20.2	0.0	52.0
125	9.4	0.0	40.6

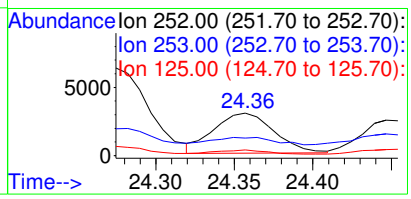


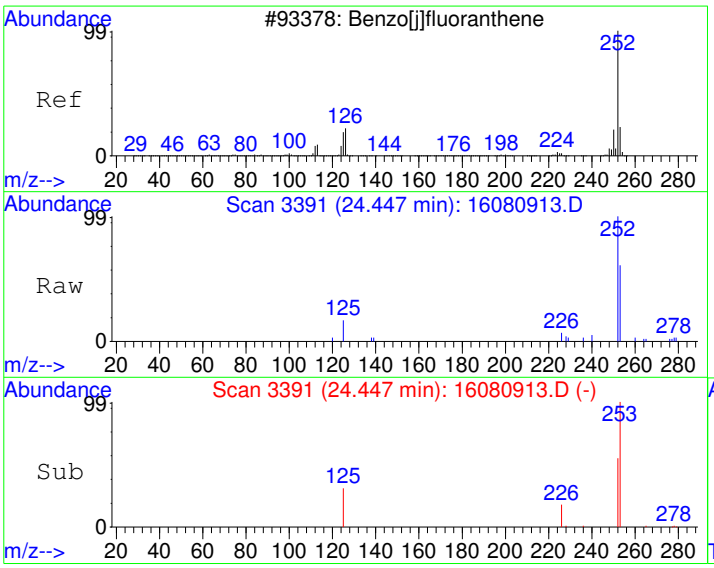


#22
Benzo[k]fluoranthene
Concen: 15.43 ug/kg
RT: 24.36 min Scan# 3379
Delta R.T. -0.05 min
Lab File: 16080913.D
Acq: 9 Aug 2016 4:26 pm

Tgt Ion:252 Resp: 7804

Ion	Ratio	Lower	Upper
252	100		
253	13.9	2.2	42.2
125	10.6	0.0	30.3

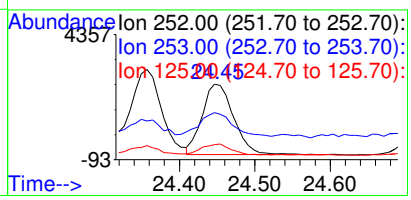


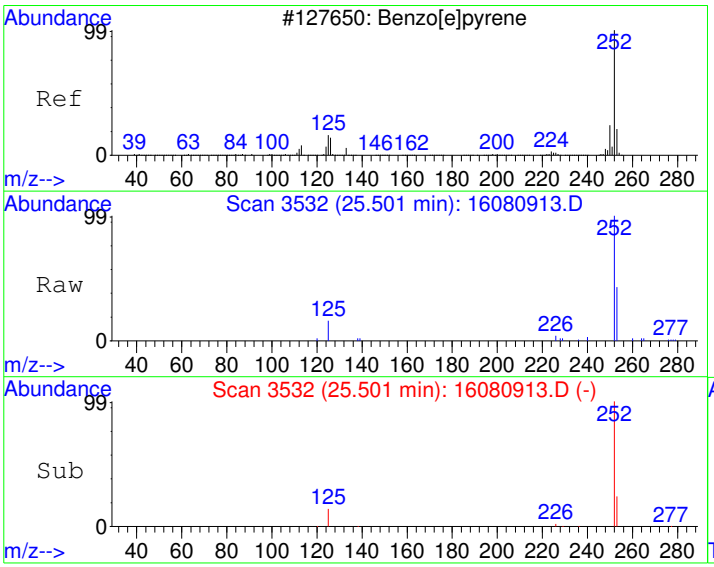


#23
Benzo(j)fluoranthene
Concen: 14.89 ug/kg
RT: 24.45 min Scan# 3391
Delta R.T. -0.06 min
Lab File: 16080913.D
Acq: 9 Aug 2016 4:26 pm

Tgt Ion:252 Resp: 7234

Ion	Ratio	Lower	Upper
252	100		
253	32.9	2.2	42.2
125	13.9	0.0	34.4

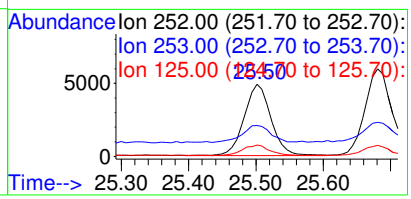


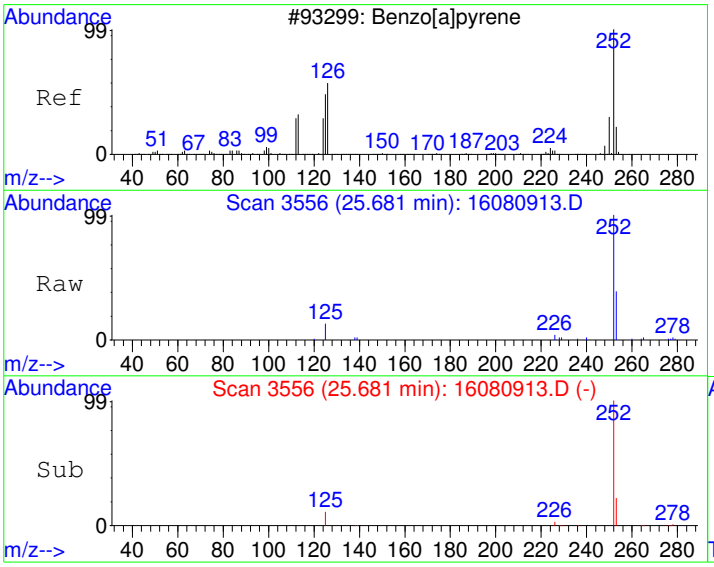


#24
Benzo[e]pyrene
Concen: 25.05 ug/kg
RT: 25.50 min Scan# 3532
Delta R.T. -0.05 min
Lab File: 16080913.D
Acq: 9 Aug 2016 4:26 pm

Tgt Ion:252 Resp: 13397

Ion	Ratio	Lower	Upper
252	100		
253	22.9	2.2	42.2
125	14.5	0.0	35.7

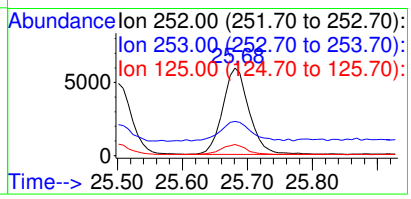


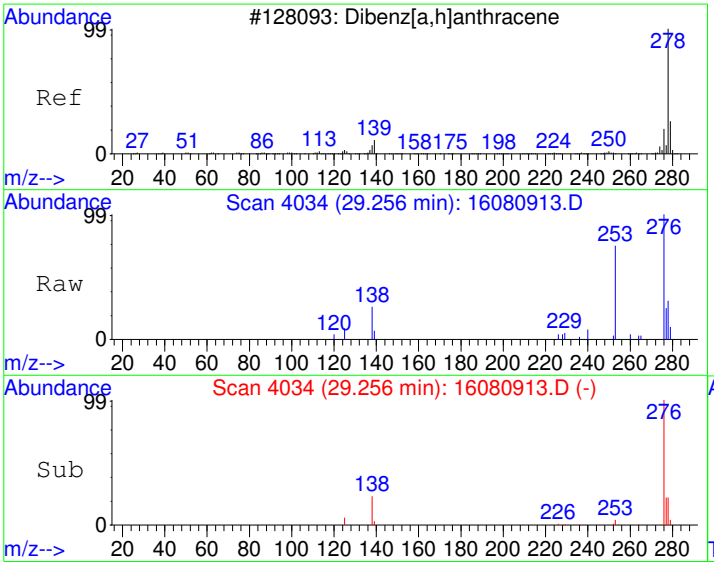


#25
Benzo[a]pyrene
Concen: 31.06 ug/kg
RT: 25.68 min Scan# 3556
Delta R.T. -0.05 min
Lab File: 16080913.D
Acq: 9 Aug 2016 4:26 pm

Tgt Ion:252 Resp: 16540

Ion	Ratio	Lower	Upper
252	100		
253	22.0	2.0	42.0
125	11.4	0.0	31.6

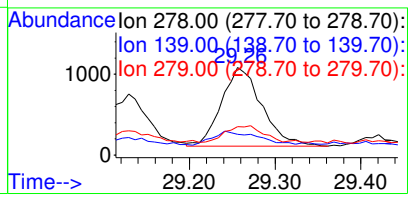


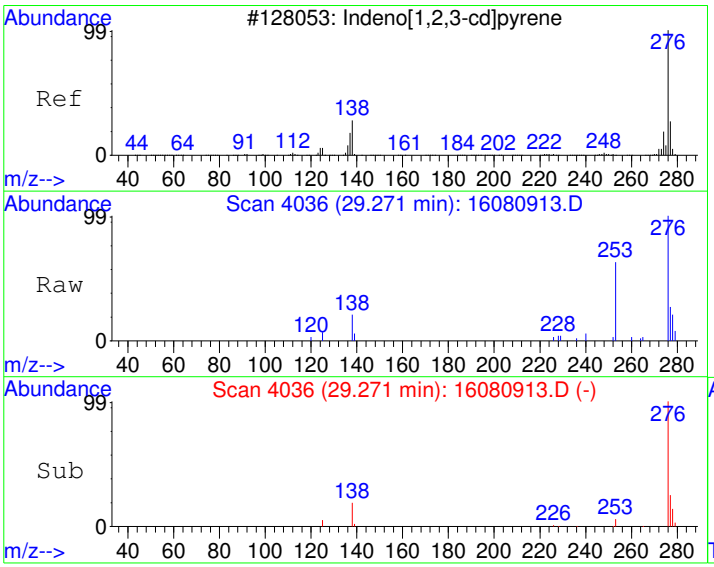


#26
Dibenz[a,h]anthracene
Concen: 6.17 ug/kg
RT: 29.26 min Scan# 4034
Delta R.T. -0.07 min
Lab File: 16080913.D
Acq: 9 Aug 2016 4:26 pm

Tgt Ion:278 Resp: 3180

Ion	Ratio	Lower	Upper
278	100		
139	13.1	0.0	33.8
279	20.9	3.9	43.9

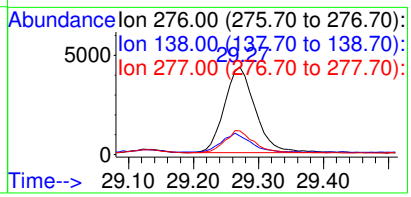


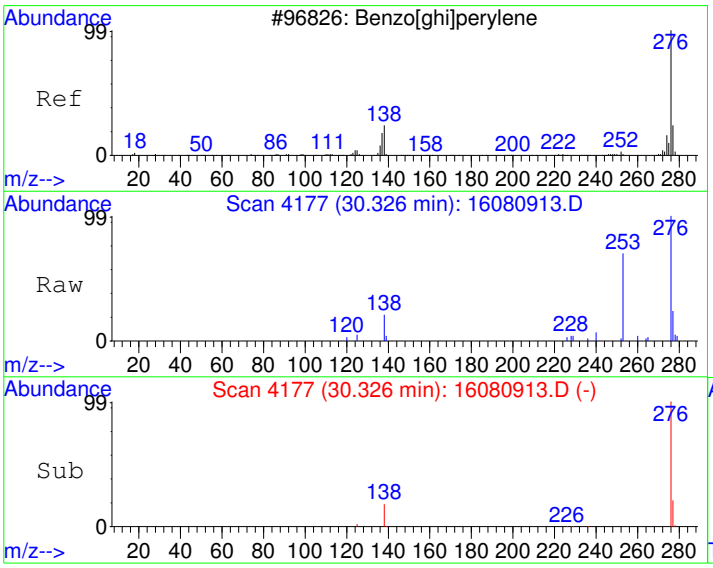


#27
Indeno[1,2,3-cd]pyrene
Concen: 23.29 ug/kg
RT: 29.27 min Scan# 4036
Delta R.T. -0.05 min
Lab File: 16080913.D
Acq: 9 Aug 2016 4:26 pm

Tgt Ion:276 Resp: 14244

Ion	Ratio	Lower	Upper
276	100		
138	18.7	4.8	44.8
277	26.0	5.6	45.6

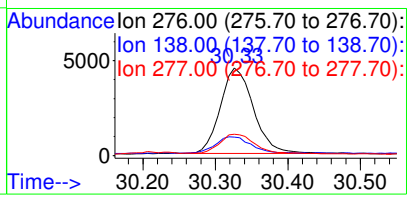




#28
Benzo[g,h,i]perylene
Concen: 27.93 ug/kg
RT: 30.33 min Scan# 4177
Delta R.T. -0.07 min
Lab File: 16080913.D
Acq: 9 Aug 2016 4:26 pm

Tgt Ion:276 Resp: 14306

Ion	Ratio	Lower	Upper
276	100		
138	18.7	0.0	38.1
277	22.8	4.1	44.1



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160809\16080914.D Vial: 14
Acq On : 9 Aug 2016 5:07 pm Operator: DEW
Sample : 1607317-15A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 10 7:16 2016 Quant Results File: PP160801.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration
DataAcq Meth : PP160801

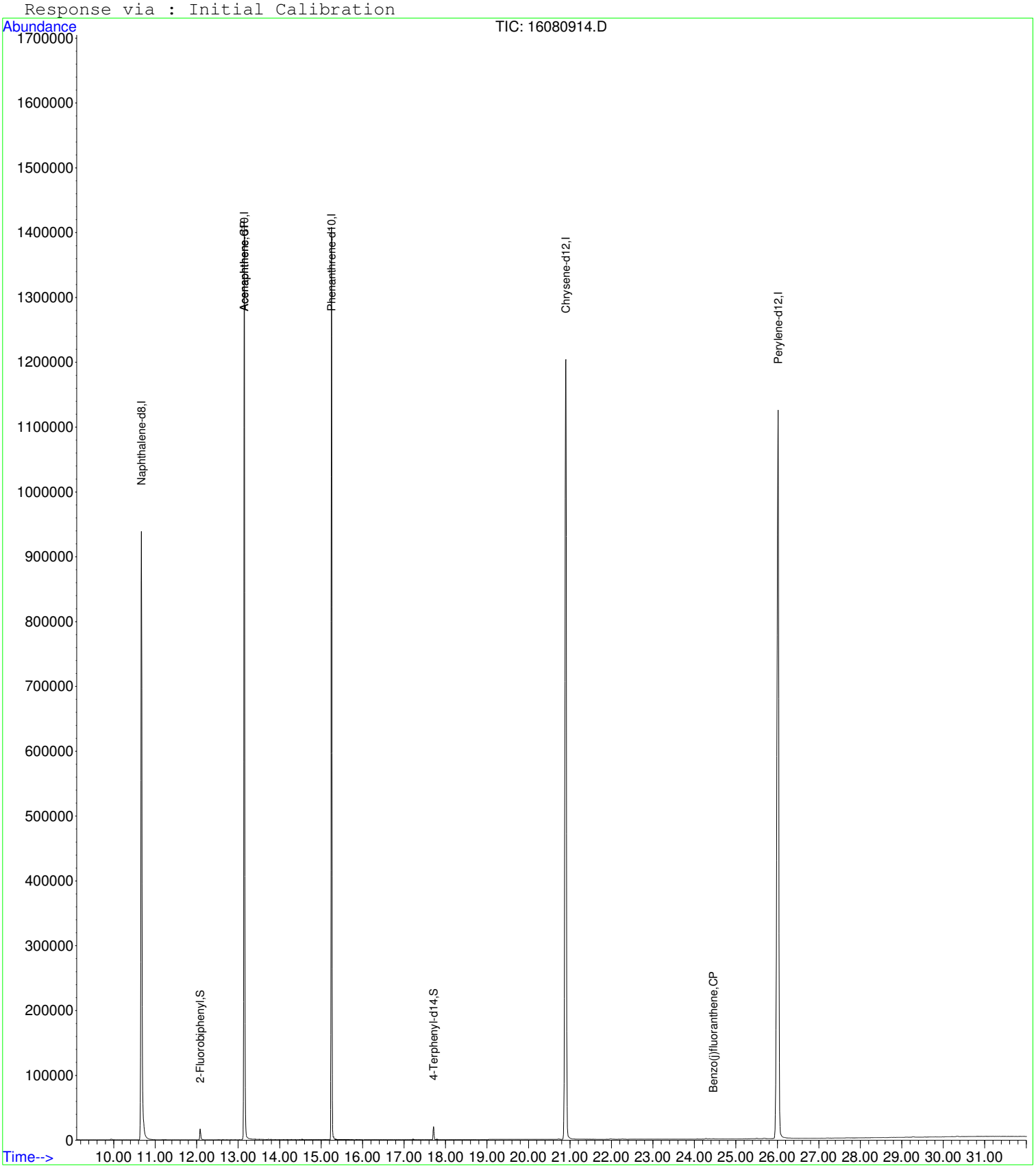
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.67	136	1540373	4000.00	ug/kg	110
5) Acenaphthene-d10	13.15	164	842830	4000.00	ug/kg	141
11) Phenanthrene-d10	15.25	188	1599311	4000.00	ug/kg	101
17) Chrysene-d12	20.90	240	2170855	4000.00	ug/kg	118
20) Perylene-d12	26.02	264	2349911	4000.00	ug/kg	122
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.09	172	21043	71.58	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.79%#		
16) 4-Terphenyl-d14	17.71	244	29378	77.84	ug/kg	-0.03
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.95%#		
Target Compounds						Qvalue
9) Acenaphthene	13.15	154	2956	~~13.67 ug/kg#~~		~~10~~
23) Benzo(j)fluoranthene	24.45	252	868	1.81	ug/kg#	72

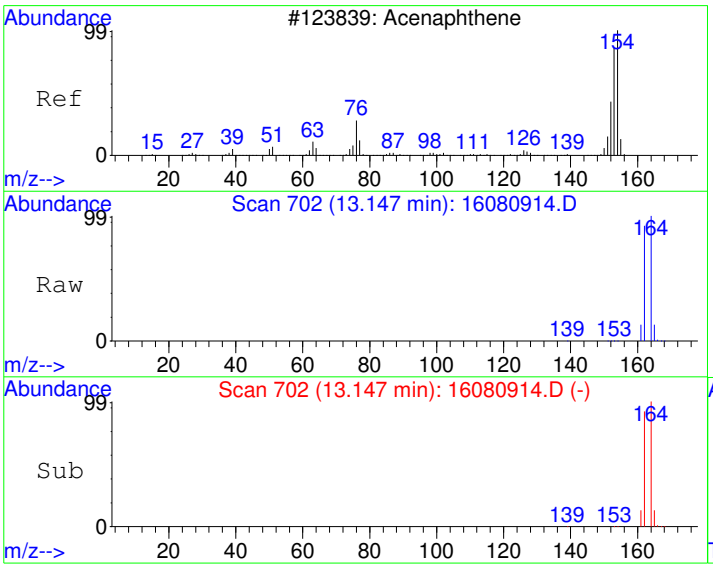
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160809\16080914.D Vial: 14
Acq On : 9 Aug 2016 5:07 pm Operator: DEW
Sample : 1607317-15A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 10 7:16 2016 Quant Results File: PP160801.RES

Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration

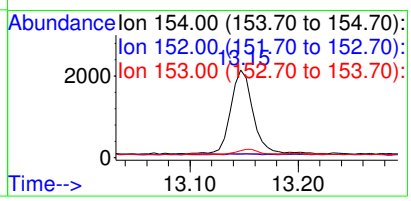


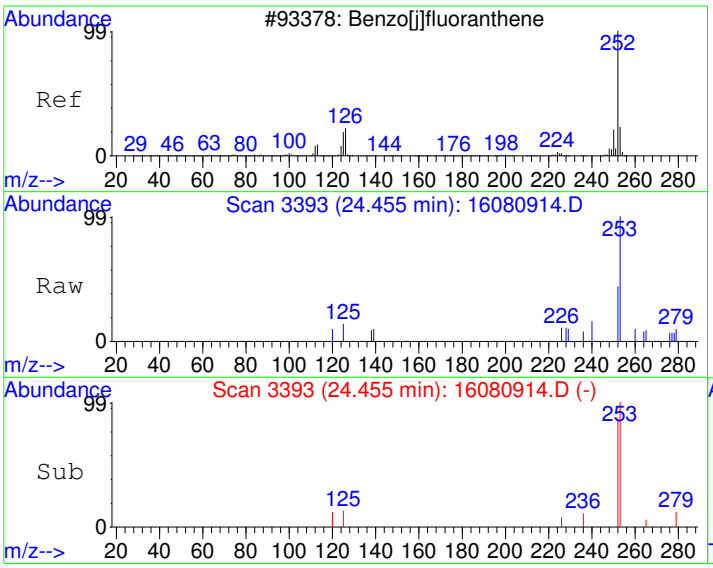


#9
Acenaphthene
Concen: 13.67 ug/kg
RT: 13.15 min Scan# 702
Delta R.T. -0.07 min
Lab File: 16080914.D
Acq: 9 Aug 2016 5:07 pm

Tgt Ion:154 Resp: 2956

Ion	Ratio	Lower	Upper
154	100		
152	0.6	19.1	79.1#
153	4.6	76.2	136.2#

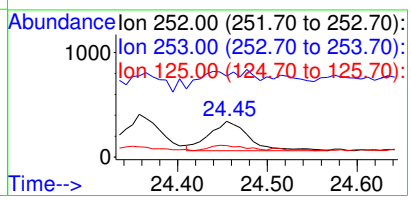




#23
Benzo(j)fluoranthene
Concen: 1.81 ug/kg
RT: 24.45 min Scan# 3393
Delta R.T. -0.05 min
Lab File: 16080914.D
Acq: 9 Aug 2016 5:07 pm

Tgt Ion:252 Resp: 868

Ion	Ratio	Lower	Upper
252	100		
253	43.5	2.2	42.2#
125	13.4	0.0	34.4



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160809\16080915.D Vial: 15
Acq On : 9 Aug 2016 5:48 pm Operator: DEW
Sample : 1607317-16A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 10 7:16 2016 Quant Results File: PP160801.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration
DataAcq Meth : PP160801

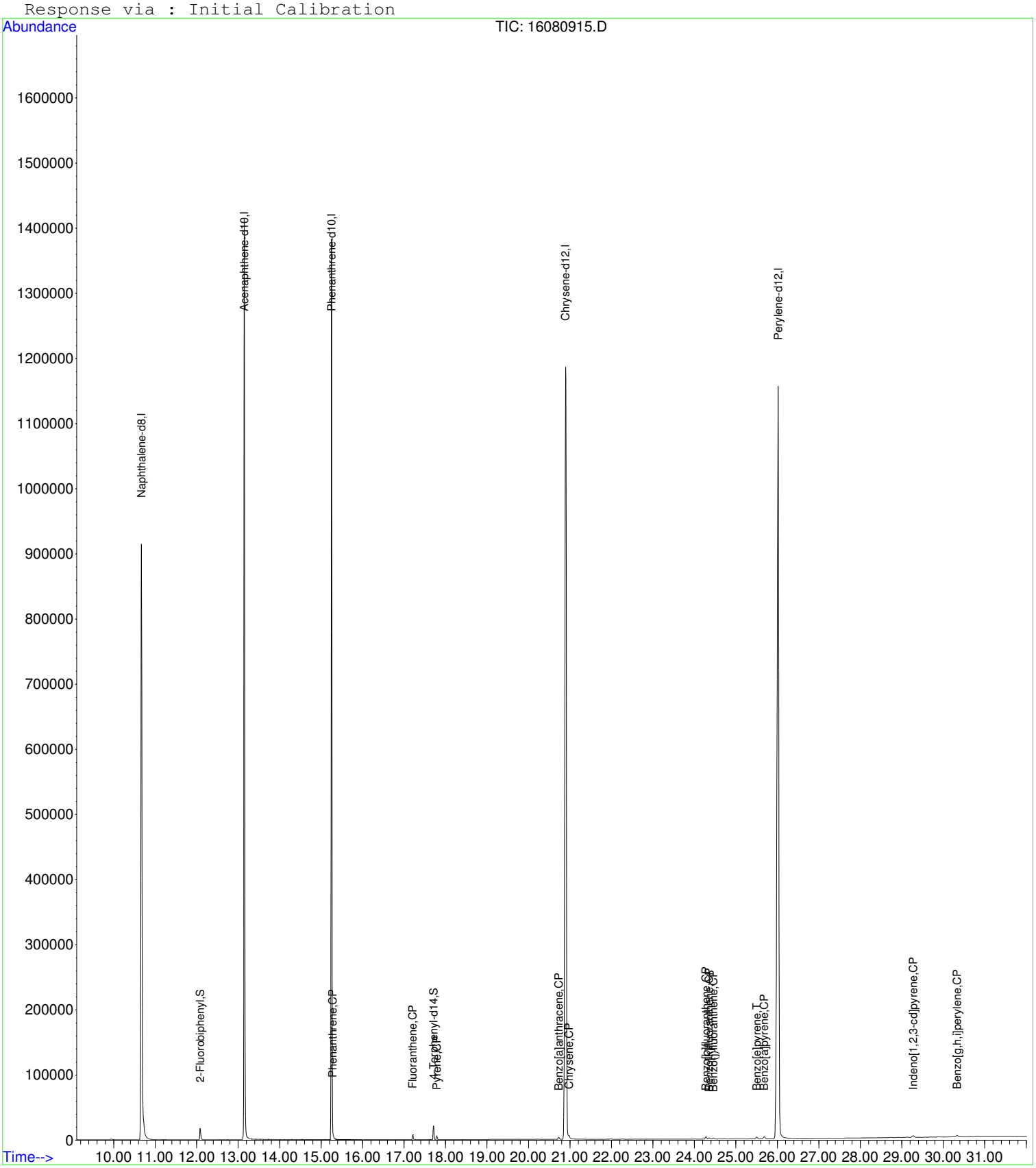
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.67	136	1511213	4000.00	ug/kg	108
5) Acenaphthene-d10	13.15	164	823634	4000.00	ug/kg	137
11) Phenanthrene-d10	15.25	188	1582462	4000.00	ug/kg	99
17) Chrysene-d12	20.89	240	2154749	4000.00	ug/kg	117
20) Perylene-d12	26.02	264	2298023	4000.00	ug/kg	119
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.08	172	21562	75.05	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 1.88%#			
16) 4-Terphenyl-d14	17.71	244	30801	82.48	ug/kg	-0.03
Spiked Amount 4000.000	Range 40 - 140		Recovery = 2.06%#			
Target Compounds						Qvalue
12) Phenanthrene	15.29	178	4061	10.82	ug/kg	99
14) Fluoranthene	17.21	202	9072	20.40	ug/kg	98
15) Pyrene	17.79	202	7748	17.19	ug/kg	99
18) Benzo[a]anthracene	20.73	228	5672	11.68	ug/kg	98
19) Chrysene	20.98	228	6130	13.12	ug/kg	99
21) Benzo[b]fluoranthene	24.28	252	6925	13.05	ug/kg	99
22) Benzo[k]fluoranthene	24.36	252	3353	6.89	ug/kg	96
23) Benzo(j)fluoranthene	24.45	252	3054	6.53	ug/kg	85
24) Benzo[e]pyrene	25.50	252	5300	10.29	ug/kg	98
25) Benzo[a]pyrene	25.68	252	6630	12.93	ug/kg	97
27) Indeno[1,2,3-cd]pyrene	29.28	276	5061	8.60	ug/kg	92
28) Benzo[g,h,i]perylene	30.33	276	5239	10.63	ug/kg	95

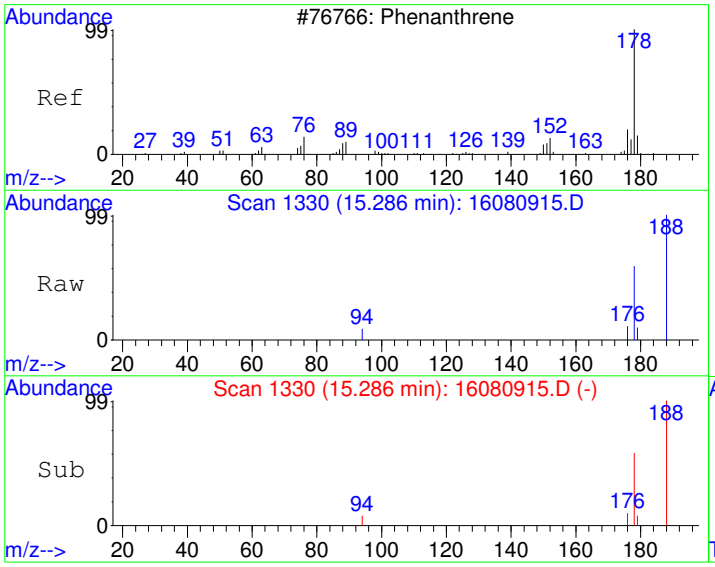
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160809\16080915.D Vial: 15
Acq On : 9 Aug 2016 5:48 pm Operator: DEW
Sample : 1607317-16A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 10 7:16 2016 Quant Results File: PP160801.RES

Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration

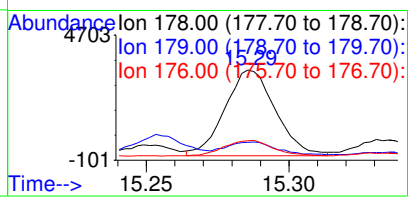


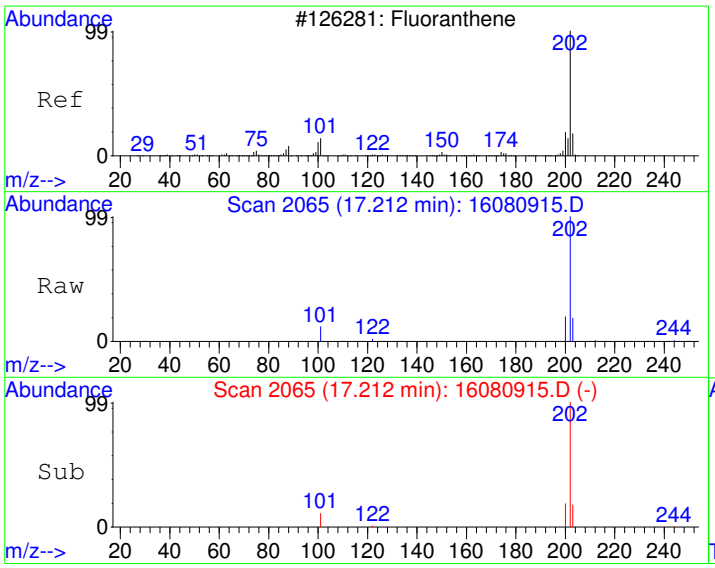


#12
Phenanthrene
Concen: 10.82 ug/kg
RT: 15.29 min Scan# 1330
Delta R.T. -0.02 min
Lab File: 16080915.D
Acq: 9 Aug 2016 5:48 pm

Tgt Ion:178 Resp: 4061

Ion	Ratio	Lower	Upper
178	100		
179	15.1	0.0	45.7
176	18.1	0.0	48.7

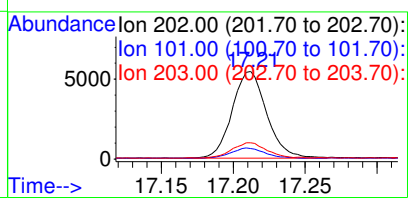


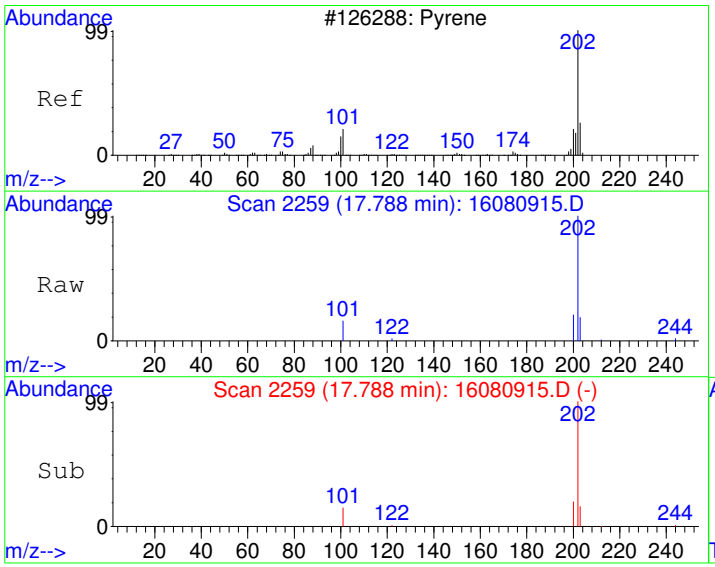


#14
Fluoranthene
Concen: 20.40 ug/kg
RT: 17.21 min Scan# 2065
Delta R.T. -0.02 min
Lab File: 16080915.D
Acq: 9 Aug 2016 5:48 pm

Tgt Ion:202 Resp: 9072

Ion	Ratio	Lower	Upper
202	100		
101	11.1	0.0	42.1
203	17.4	0.0	47.9

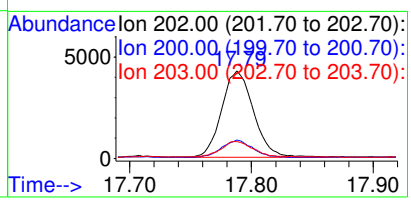


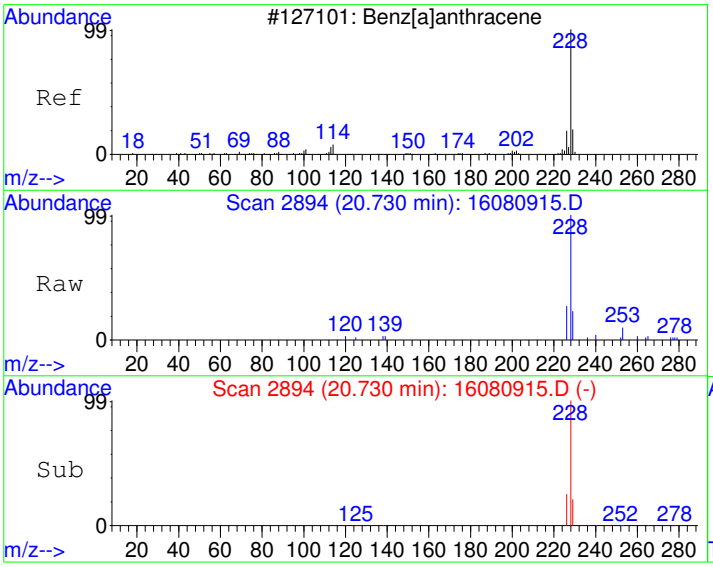


#15
Pyrene
Concen: 17.19 ug/kg
RT: 17.79 min Scan# 2259
Delta R.T. -0.02 min
Lab File: 16080915.D
Acq: 9 Aug 2016 5:48 pm

Tgt Ion:202 Resp: 7748

Ion	Ratio	Lower	Upper
202	100		
200	20.3	0.0	49.7
203	17.8	0.0	47.8

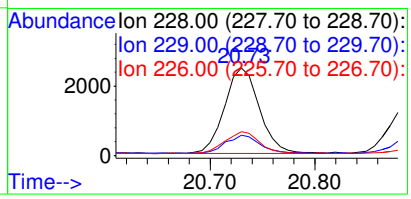


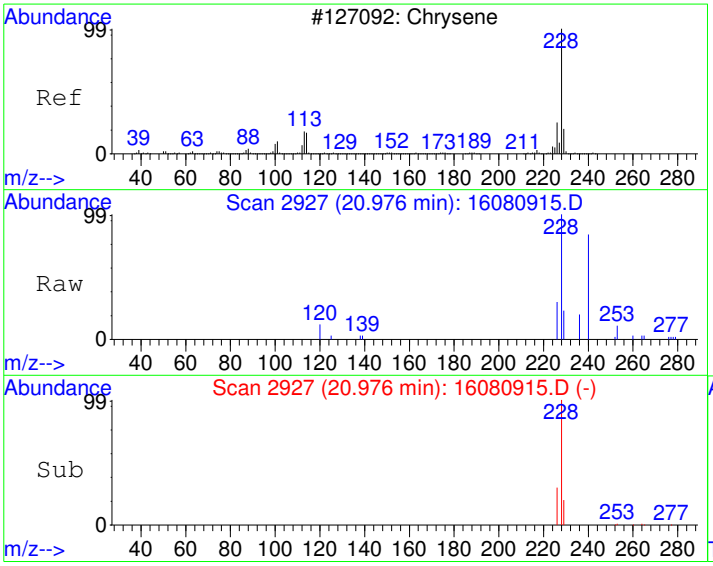


#18
Benzo[a]anthracene
Concen: 11.68 ug/kg
RT: 20.73 min Scan# 2894
Delta R.T. -0.04 min
Lab File: 16080915.D
Acq: 9 Aug 2016 5:48 pm

Tgt Ion:228 Resp: 5672

Ion	Ratio	Lower	Upper
228	100		
229	21.1	0.0	49.8
226	25.4	0.0	55.8

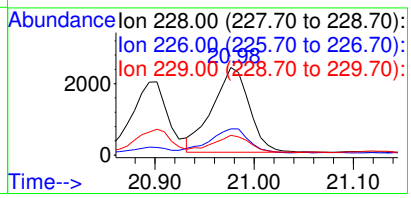


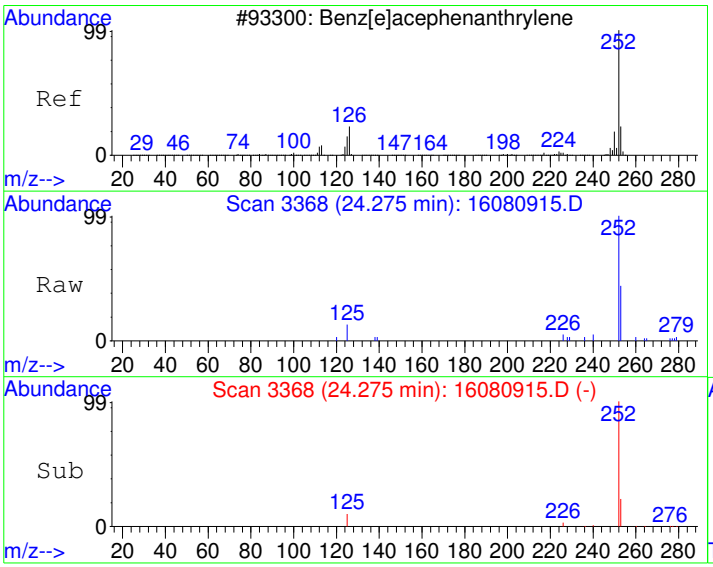


#19
Chrysene
Concen: 13.12 ug/kg
RT: 20.98 min Scan# 2927
Delta R.T. -0.05 min
Lab File: 16080915.D
Acq: 9 Aug 2016 5:48 pm

Tgt Ion:228 Resp: 6130

Ion	Ratio	Lower	Upper
228	100		
226	27.7	0.0	58.1
229	20.5	0.0	50.0

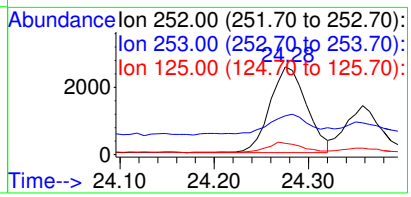


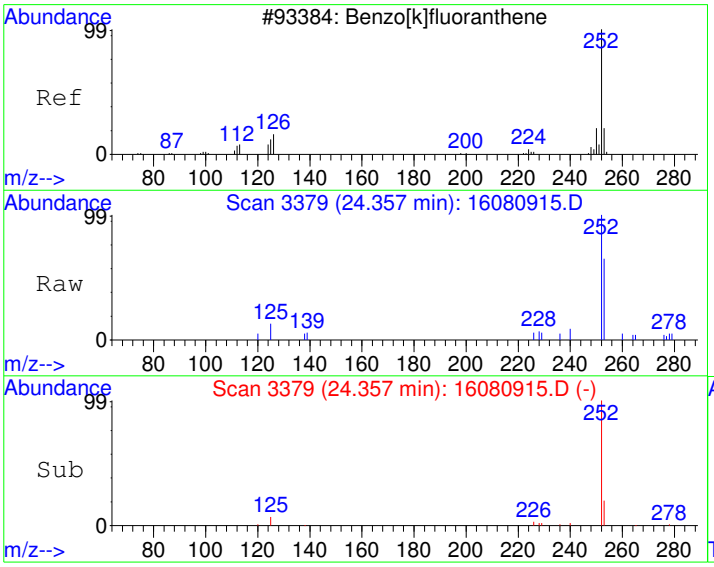


#21
Benzo[b]fluoranthene
Concen: 13.05 ug/kg
RT: 24.28 min Scan# 3368
Delta R.T. -0.05 min
Lab File: 16080915.D
Acq: 9 Aug 2016 5:48 pm

Tgt Ion:252 Resp: 6925

Ion	Ratio	Lower	Upper
252	100		
253	21.6	0.0	52.0
125	10.7	0.0	40.6

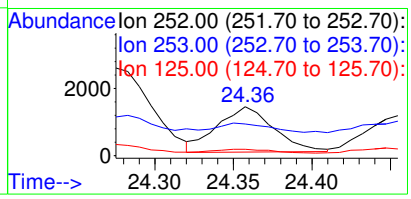


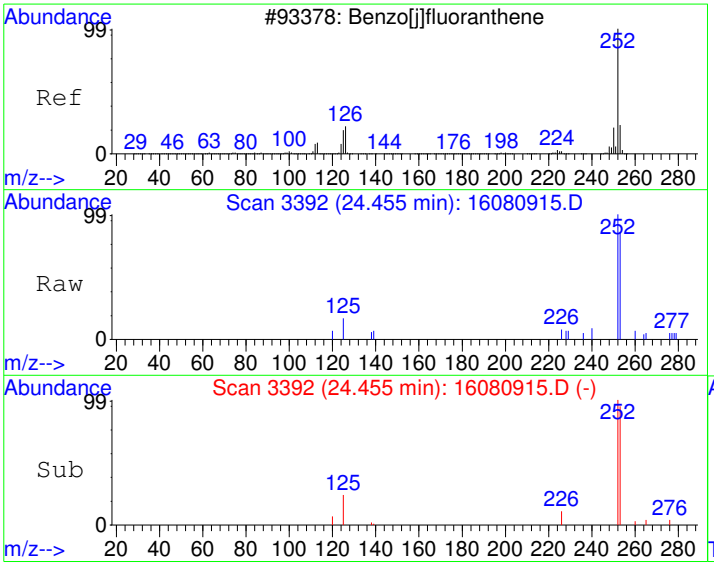


#22
Benzo[k]fluoranthene
Concen: 6.89 ug/kg
RT: 24.36 min Scan# 3379
Delta R.T. -0.05 min
Lab File: 16080915.D
Acq: 9 Aug 2016 5:48 pm

Tgt Ion:252 Resp: 3353

Ion	Ratio	Lower	Upper
252	100		
253	20.2	2.2	42.2
125	8.6	0.0	30.3

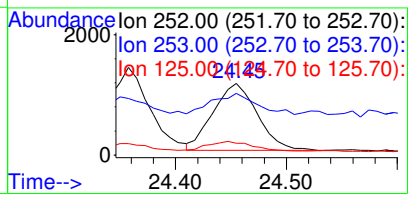


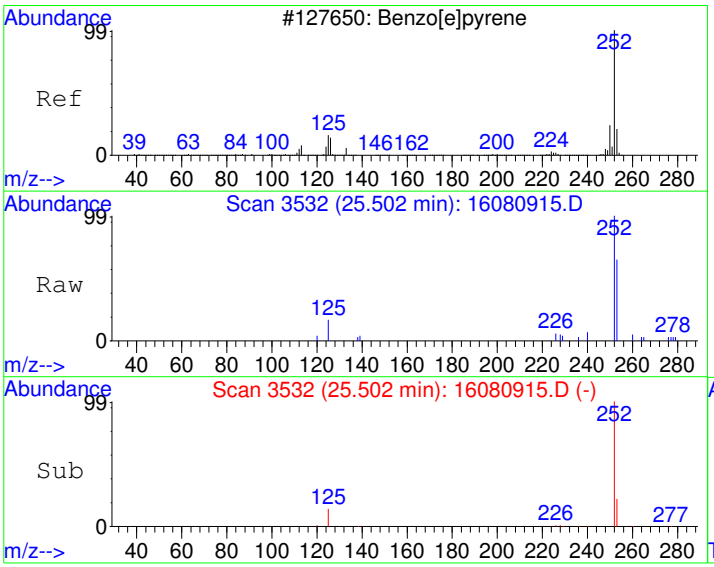


#23
Benzo(j)fluoranthene
Concen: 6.53 ug/kg
RT: 24.45 min Scan# 3392
Delta R.T. -0.05 min
Lab File: 16080915.D
Acq: 9 Aug 2016 5:48 pm

Tgt Ion:252 Resp: 3054

Ion	Ratio	Lower	Upper
252	100		
253	32.0	2.2	42.2
125	11.3	0.0	34.4

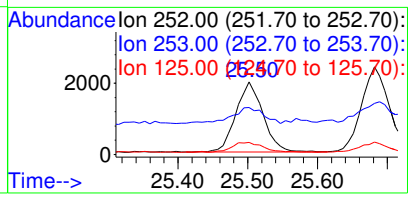


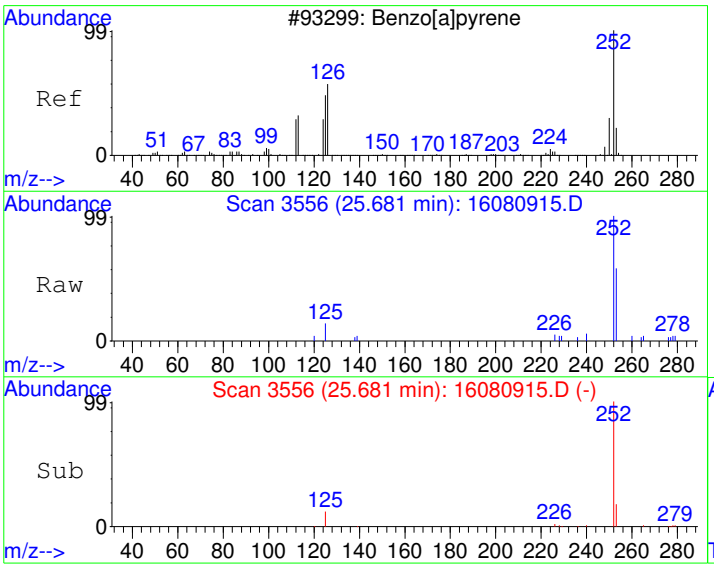


#24
Benzo[e]pyrene
Concen: 10.29 ug/kg
RT: 25.50 min Scan# 3532
Delta R.T. -0.05 min
Lab File: 16080915.D
Acq: 9 Aug 2016 5:48 pm

Tgt Ion:252 Resp: 5300

Ion	Ratio	Lower	Upper
252	100		
253	22.3	2.2	42.2
125	13.8	0.0	35.7

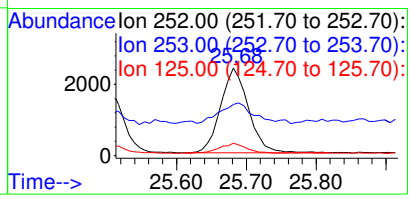


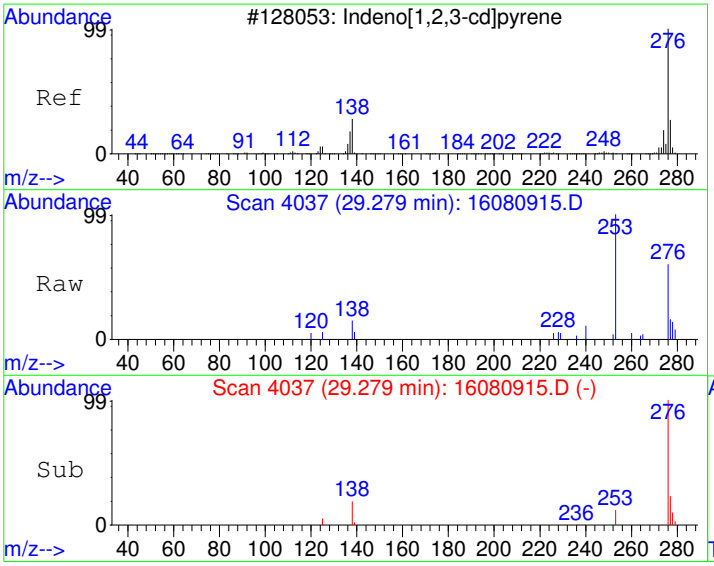


#25
Benzo[a]pyrene
Concen: 12.93 ug/kg
RT: 25.68 min Scan# 3556
Delta R.T. -0.05 min
Lab File: 16080915.D
Acq: 9 Aug 2016 5:48 pm

Tgt Ion:252 Resp: 6630

Ion	Ratio	Lower	Upper
252	100		
253	20.1	2.0	42.0
125	11.8	0.0	31.6

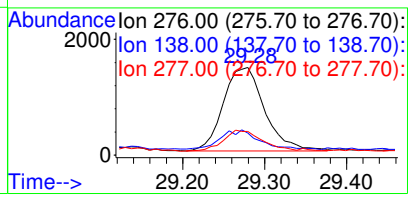


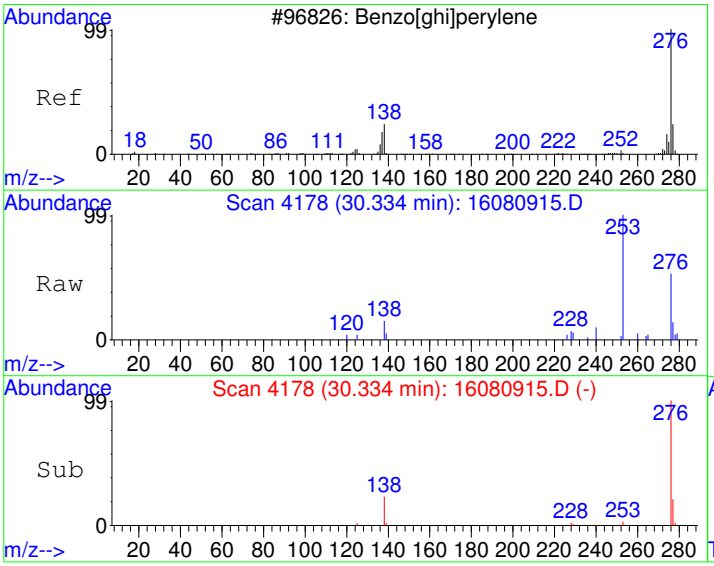


#27
Indeno[1,2,3-cd]pyrene
Concen: 8.60 ug/kg
RT: 29.28 min Scan# 4037
Delta R.T. -0.05 min
Lab File: 16080915.D
Acq: 9 Aug 2016 5:48 pm

Tgt Ion:276 Resp: 5061

Ion	Ratio	Lower	Upper
276	100		
138	19.2	4.8	44.8
277	23.4	5.6	45.6

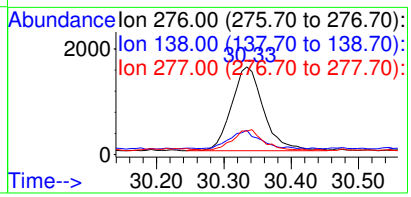




#28
Benzo[g,h,i]perylene
Concen: 10.63 ug/kg
RT: 30.33 min Scan# 4178
Delta R.T. -0.06 min
Lab File: 16080915.D
Acq: 9 Aug 2016 5:48 pm

Tgt Ion:276 Resp: 5239

Ion	Ratio	Lower	Upper
276	100		
138	21.8	0.0	38.1
277	22.9	4.1	44.1



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160809\16080916.D Vial: 16
Acq On : 9 Aug 2016 6:28 pm Operator: DEW
Sample : 1607317-17A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 10 7:16 2016 Quant Results File: PP160801.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration
DataAcq Meth : PP160801

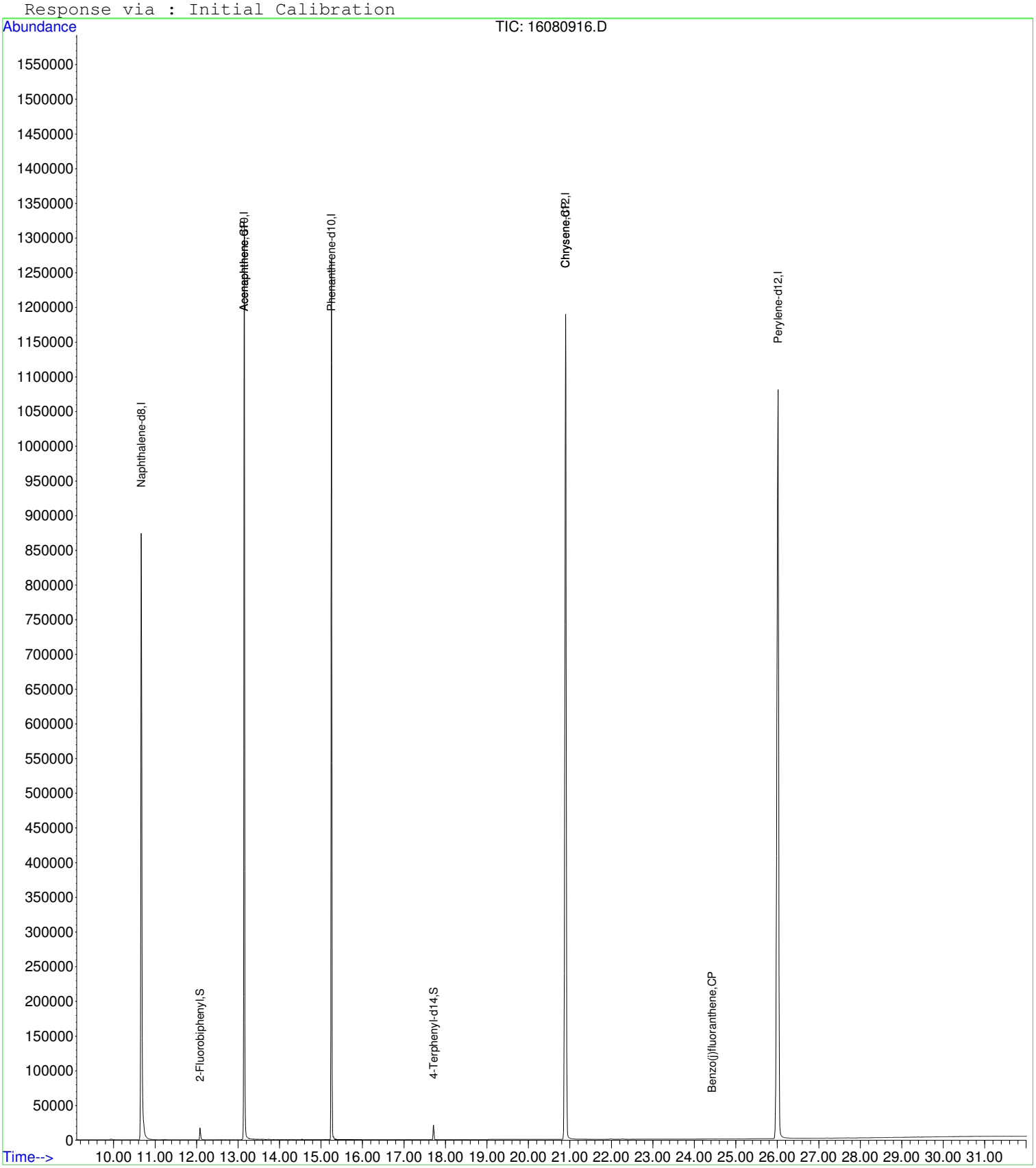
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.67	136	1439599	4000.00	ug/kg	103
5) Acenaphthene-d10	13.15	164	789577	4000.00	ug/kg	132
11) Phenanthrene-d10	15.25	188	1488365	4000.00	ug/kg	94
17) Chrysene-d12	20.89	240	2066547	4000.00	ug/kg	113
20) Perylene-d12	26.02	264	2186716	4000.00	ug/kg	113
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.08	172	21476	77.98	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.95%#		
16) 4-Terphenyl-d14	17.71	244	29987	85.38	ug/kg	-0.03
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.13%#		
Target Compounds						Qvalue
9) Acenaphthene	13.15	154	2718	13.42	ug/kg#	10
19) Chrysene	20.89	228	4396	9.81	ug/kg	68
23) Benzo(j)fluoranthene	24.42	252	22	0.05	ug/kg#	25

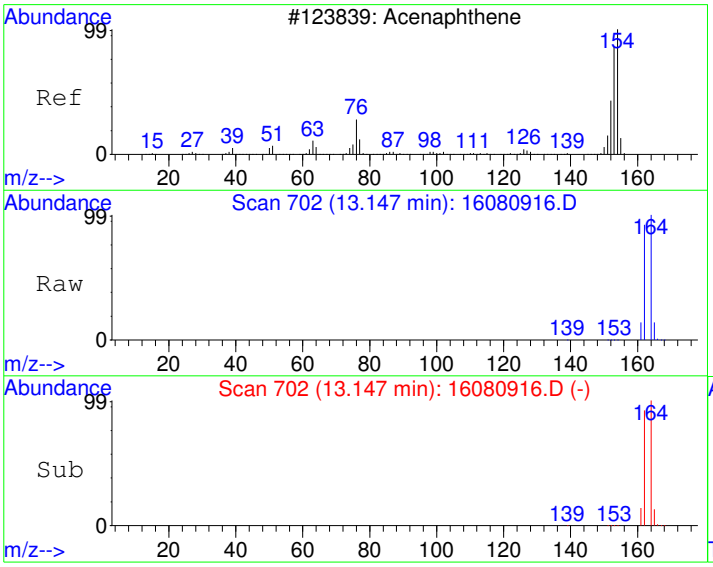
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160809\16080916.D Vial: 16
Acq On : 9 Aug 2016 6:28 pm Operator: DEW
Sample : 1607317-17A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 10 7:16 2016 Quant Results File: PP160801.RES

Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration

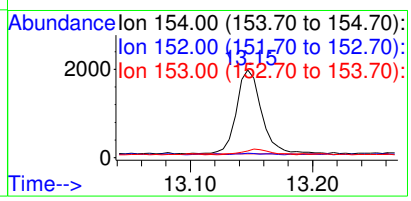


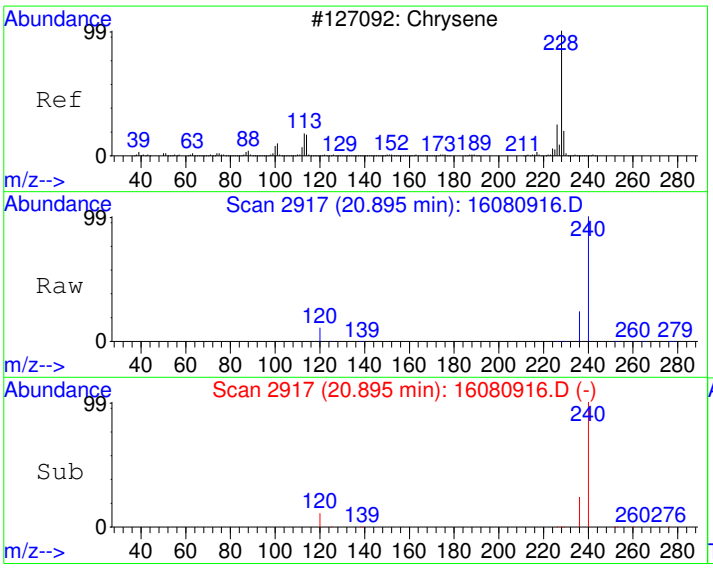


#9
Acenaphthene
Concen: 13.42 ug/kg
RT: 13.15 min Scan# 702
Delta R.T. -0.07 min
Lab File: 16080916.D
Acq: 9 Aug 2016 6:28 pm

Tgt Ion:154 Resp: 2718

Ion	Ratio	Lower	Upper
154	100		
152	1.6	19.1	79.1#
153	4.0	76.2	136.2#

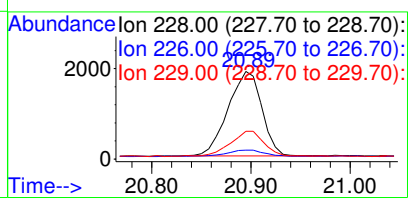


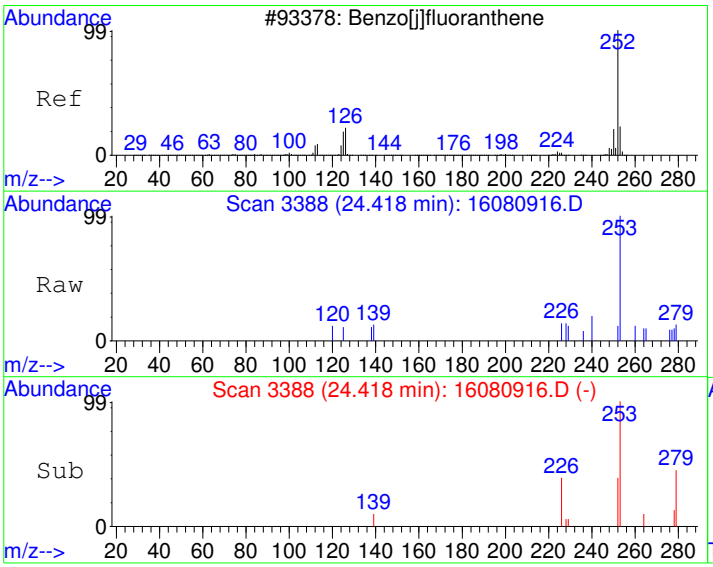


#19
Chrysene
Concen: 9.81 ug/kg
RT: 20.89 min Scan# 2917
Delta R.T. -0.13 min
Lab File: 16080916.D
Acq: 9 Aug 2016 6:28 pm

Tgt Ion:228 Resp: 4396

Ion	Ratio	Lower	Upper
228	100		
226	7.3	0.0	58.1
229	29.9	0.0	50.0

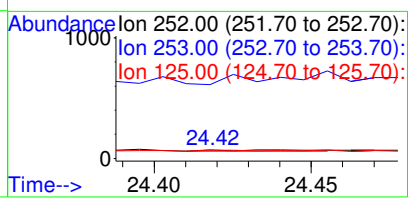




#23
Benzo(j)fluoranthene
Concen: 0.05 ug/kg
RT: 24.42 min Scan# 3388
Delta R.T. -0.09 min
Lab File: 16080916.D
Acq: 9 Aug 2016 6:28 pm

Tgt Ion:252 Resp: 22

Ion	Ratio	Lower	Upper
252	100		
253	0.0	2.2	42.2#
125	63.6	0.0	34.4#



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160809\16080918.D Vial: 18
Acq On : 9 Aug 2016 7:49 pm Operator: DEW
Sample : ICV2-160809 Inst : GC/MS #6
Misc : ICV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 10 7:03 2016 Quant Results File: PP160801.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration
DataAcq Meth : PP160801

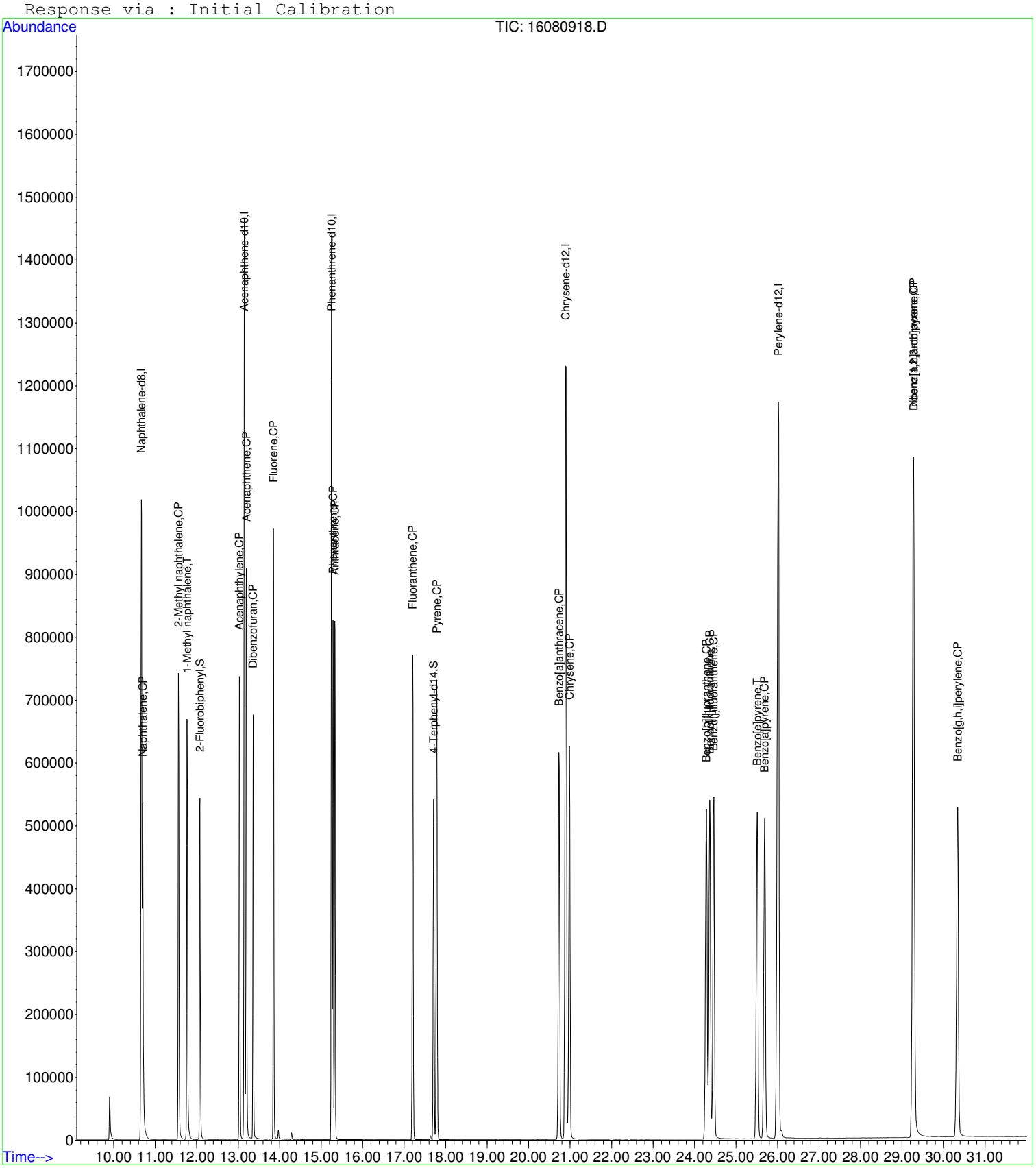
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.66	136	1579786	4000.00	ug/kg	113
5) Acenaphthene-d10	13.15	164	873081	4000.00	ug/kg	146
11) Phenanthrene-d10	15.25	188	1702211	4000.00	ug/kg	107
17) Chrysene-d12	20.90	240	2243930	4000.00	ug/kg	122
20) Perylene-d12	26.02	264	2458644	4000.00	ug/kg	127
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.08	172	545039	1789.70	ug/kg	-0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery = 44.74%			
16) 4-Terphenyl-d14	17.71	244	757508	1885.74	ug/kg	-0.03
Spiked Amount 4000.000	Range 40 - 140		Recovery = 47.14%			
Target Compounds						Qvalue
2) Naphthalene	10.70	128	651171	1811.63	ug/kg	100
3) 2-Methyl naphthalene	11.56	142	468857	2012.12	ug/kg	97
4) 1-Methyl naphthalene	11.77	142	424782	2058.06	ug/kg	98
6) Dibenzofuran	13.36	168	644422	1823.88	ug/kg	100
8) Acenaphthylene	13.03	152	724939	1875.00	ug/kg	100
9) Acenaphthene	13.20	154	424522	1895.85	ug/kg	98
10) Fluorene	13.85	166	534942	1900.49	ug/kg	99
12) Phenanthrene	15.29	178	732334	1814.66	ug/kg	99
13) Anthracene	15.33	178	761407	1793.03	ug/kg	100
14) Fluoranthene	17.21	202	841796	1760.12	ug/kg	100
15) Pyrene	17.79	202	855953	1765.05	ug/kg	100
18) Benzo[a]anthracene	20.73	228	966617	1911.18	ug/kg	99
19) Chrysene	20.98	228	910620	1871.52	ug/kg	100
21) Benzo[b]fluoranthene	24.28	252	1088834	1918.34	ug/kg	100
22) Benzo[k]fluoranthene	24.37	252	1023590	1965.76	ug/kg	100
23) Benzo(j)fluoranthene	24.46	252	987129	1972.65	ug/kg	100
24) Benzo[e]pyrene	25.51	252	1053446	1912.54	ug/kg	99
25) Benzo[a]pyrene	25.69	252	1043316	1902.42	ug/kg	99
26) Dibenz[a,h]anthracene	29.27	278	1086256	2046.83	ug/kg	97
27) Indeno[1,2,3-cd]pyrene	29.28	276	1272402	2020.42	ug/kg	99
28) Benzo[g,h,i]perylene	30.34	276	1067575	2023.96	ug/kg	97

(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160809\16080918.D Vial: 18
Acq On : 9 Aug 2016 7:49 pm Operator: DEW
Sample : ICV2-160809 Inst : GC/MS #6
Misc : ICV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 10 7:03 2016 Quant Results File: PP160801.RES

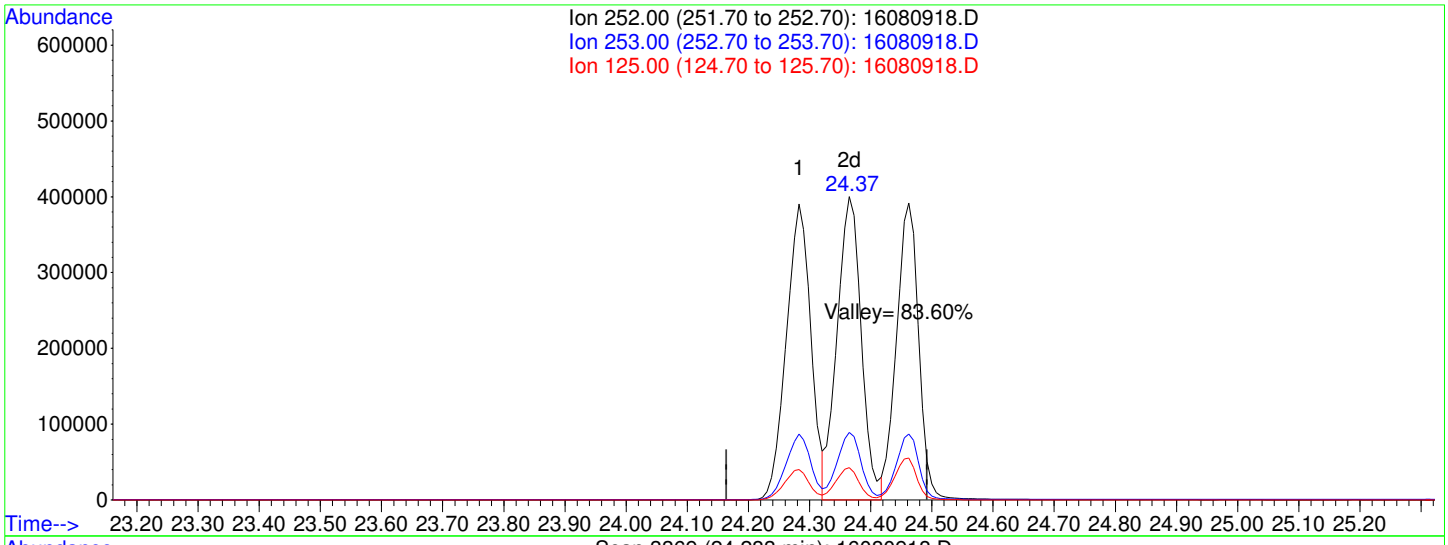
Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration

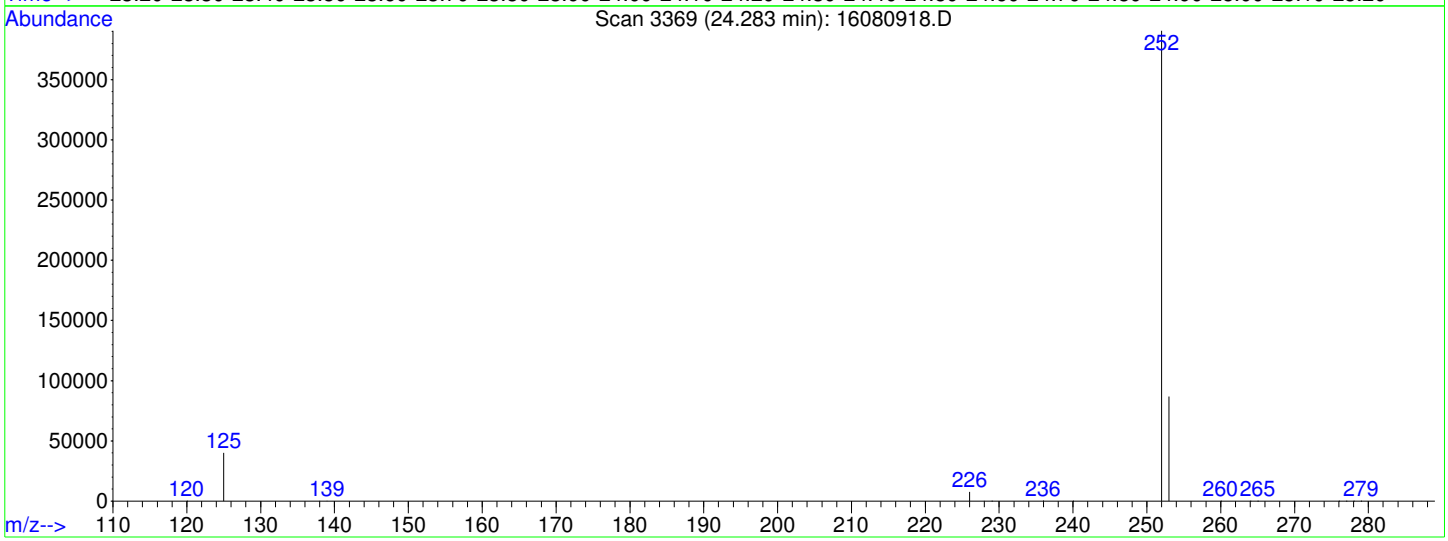


Quantitation Report (Qedit)

Data File : C:\HPCHEM\1\DATA\160809\16080918.D Vial: 18
Acq On : 9 Aug 2016 7:49 pm Operator: DEW
Sample : ICV2-160809 Inst : GC/MS #6
Misc : ICV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 9 20:21 2016 Quant Results File: temp.res

Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Multiple Level Calibration





TIC: 16080918.D

(21) Benzo[b]fluoranthene (CP)

24.28min 1918.34ug/kg

response 1088834

Ion	Exp%	Act%
252.00	100	100
253.00	22.00	22.11
125.00	10.60	10.27
0.00	0.00	0.00

Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160809\16080920.D Vial: 20
Acq On : 9 Aug 2016 9:09 pm Operator: DEW
Sample : SB-160809 Inst : GC/MS #6
Misc : SBLK Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 10 7:03 2016 Quant Results File: PP160801.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration
DataAcq Meth : PP160801

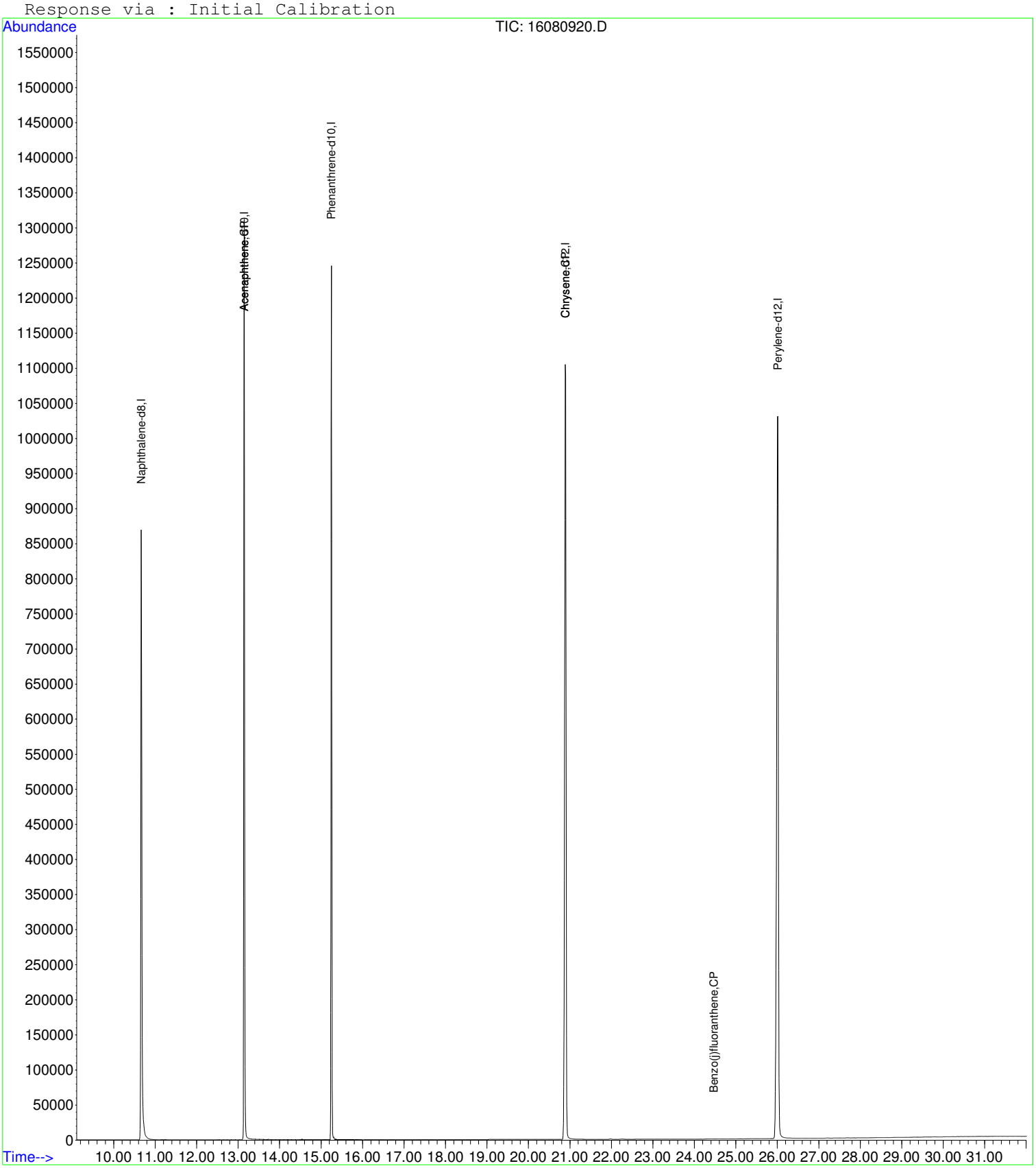
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.66	136	1391778	4000.00	ug/kg	99
5) Acenaphthene-d10	13.15	164	773567	4000.00	ug/kg	129
11) Phenanthrene-d10	15.25	188	1442449	4000.00	ug/kg	91
17) Chrysene-d12	20.89	240	1932415	4000.00	ug/kg	105
20) Perylene-d12	26.01	264	2096523	4000.00	ug/kg	109
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.10	172	21	0.08	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	0.00%#		
16) 4-Terphenyl-d14	17.71	244	25	0.07	ug/kg	-0.03
Spiked Amount 4000.000	Range 40 - 140		Recovery =	0.00%#		
Target Compounds						Qvalue
9) Acenaphthene	13.15	154	2593	~~13.07 ug/kg#~~		~~12~~
19) Chrysene	20.89	228	4221	~~10.07 ug/kg~~		~~69~~
23) Benzo(j)fluoranthene	24.48	252	22	0.05	ug/kg#	1

(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160809\16080920.D Vial: 20
Acq On : 9 Aug 2016 9:09 pm Operator: DEW
Sample : SB-160809 Inst : GC/MS #6
Misc : SBLK Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 10 7:03 2016 Quant Results File: PP160801.RES

Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160809\16080921.D Vial: 21
Acq On : 9 Aug 2016 9:49 pm Operator: DEW
Sample : 1607317-18A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 10 7:16 2016 Quant Results File: PP160801.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration
DataAcq Meth : PP160801

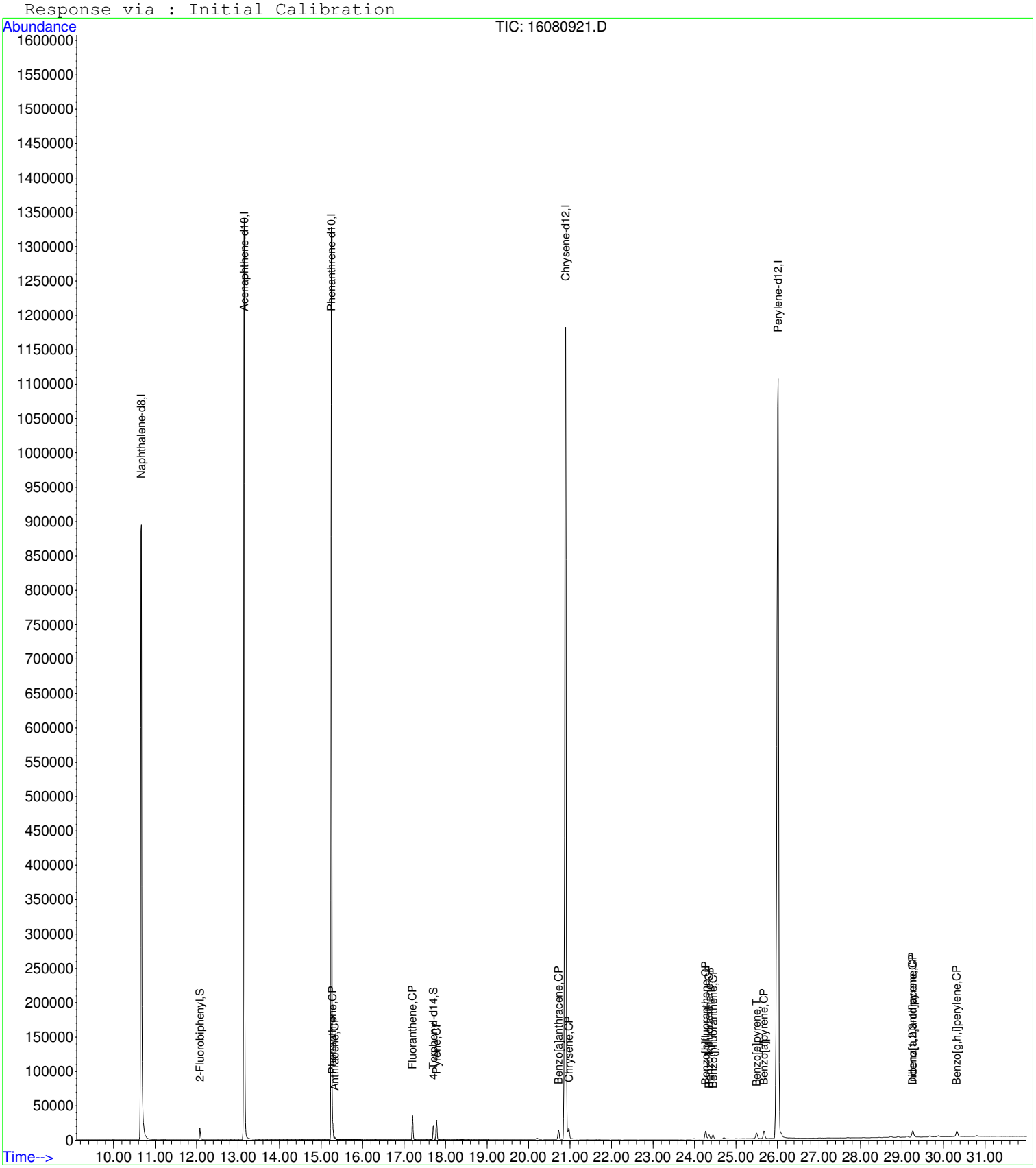
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.67	136	1513989	4000.00	ug/kg	108
5) Acenaphthene-d10	13.15	164	817644	4000.00	ug/kg	136
11) Phenanthrene-d10	15.25	188	1548244	4000.00	ug/kg	97
17) Chrysene-d12	20.89	240	2102729	4000.00	ug/kg	115
20) Perylene-d12	26.01	264	2262000	4000.00	ug/kg	117
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.08	172	21205	74.35	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.86%#		
16) 4-Terphenyl-d14	17.71	244	29466	80.65	ug/kg	-0.03
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.02%#		
Target Compounds						Qvalue
12) Phenanthrene	15.28	178	17205	46.87	ug/kg	98
13) Anthracene	15.33	178	3252	8.42	ug/kg	99
14) Fluoranthene	17.20	202	39857	91.63	ug/kg	99
15) Pyrene	17.78	202	34010	77.11	ug/kg	99
18) Benzo[a]anthracene	20.72	228	20581	43.42	ug/kg	99
19) Chrysene	20.97	228	23456	51.44	ug/kg	98
21) Benzo[b]fluoranthene	24.27	252	22614	43.31	ug/kg	100
22) Benzo[k]fluoranthene	24.35	252	11306	23.60	ug/kg	96
23) Benzo(j)fluoranthene	24.45	252	10905	23.69	ug/kg	91
24) Benzo[e]pyrene	25.49	252	17396	34.33	ug/kg	98
25) Benzo[a]pyrene	25.67	252	22567	44.73	ug/kg	98
26) Dibenz[a,h]anthracene	29.25	278	3981	8.15	ug/kg	98
27) Indeno[1,2,3-cd]pyrene	29.26	276	17285	29.83	ug/kg	91
28) Benzo[g,h,i]perylene	30.33	276	16665	34.34	ug/kg	99

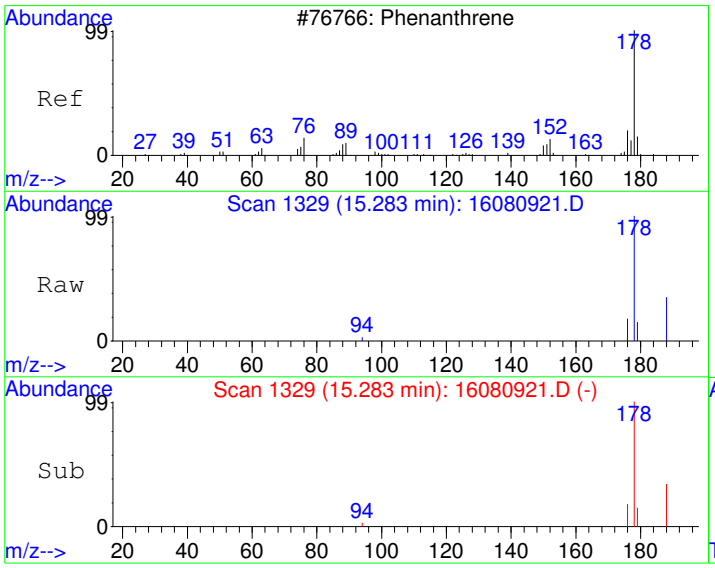
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160809\16080921.D Vial: 21
Acq On : 9 Aug 2016 9:49 pm Operator: DEW
Sample : 1607317-18A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 10 7:16 2016 Quant Results File: PP160801.RES

Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration

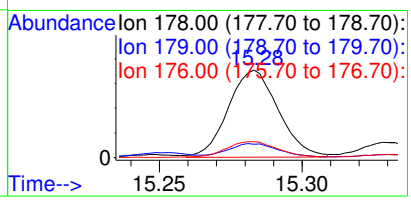


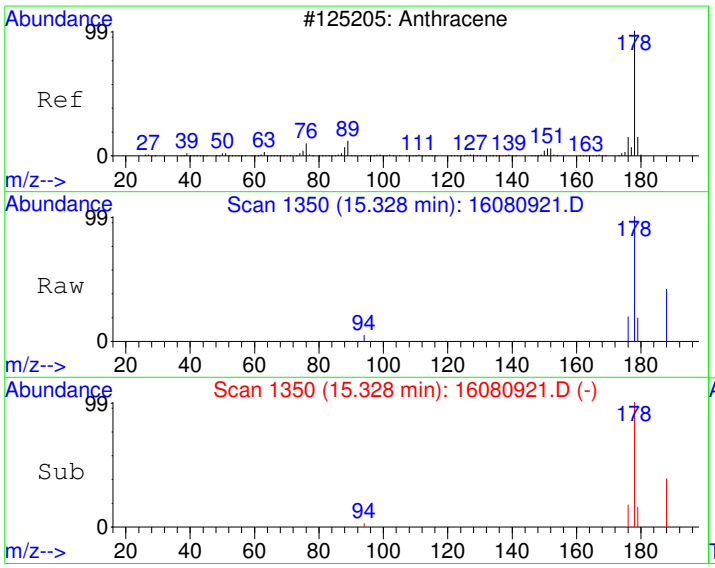


#12
Phenanthrene
Concen: 46.87 ug/kg
RT: 15.28 min Scan# 1329
Delta R.T. -0.02 min
Lab File: 16080921.D
Acq: 9 Aug 2016 9:49 pm

Tgt Ion:178 Resp: 17205

Ion	Ratio	Lower	Upper
178	100		
179	14.7	0.0	45.7
176	18.2	0.0	48.7

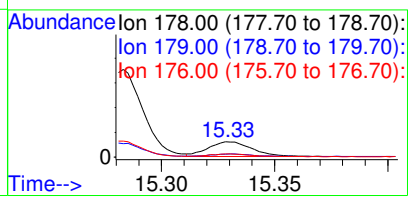


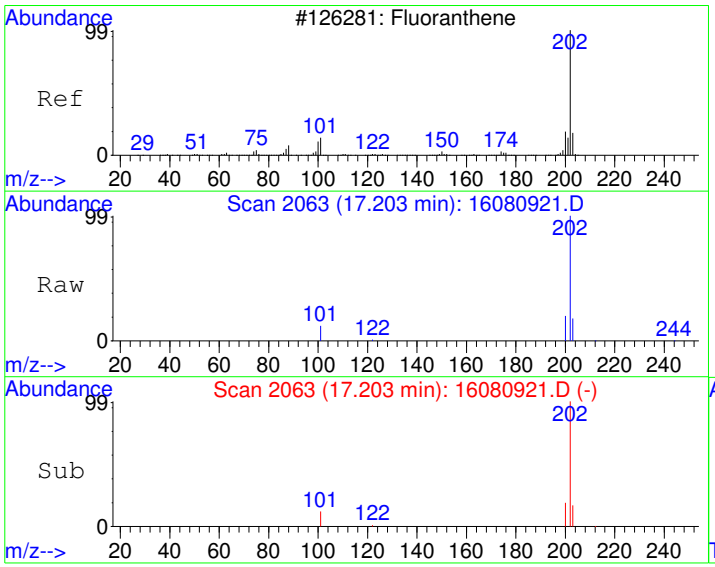


#13
Anthracene
Concen: 8.42 ug/kg
RT: 15.33 min Scan# 1350
Delta R.T. -0.02 min
Lab File: 16080921.D
Acq: 9 Aug 2016 9:49 pm

Tgt Ion:178 Resp: 3252

Ion	Ratio	Lower	Upper
178	100		
179	15.2	0.0	45.7
176	18.2	0.0	47.9

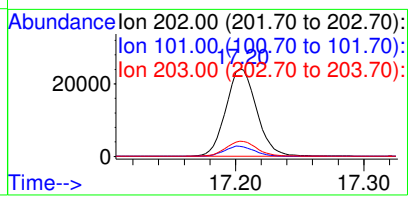


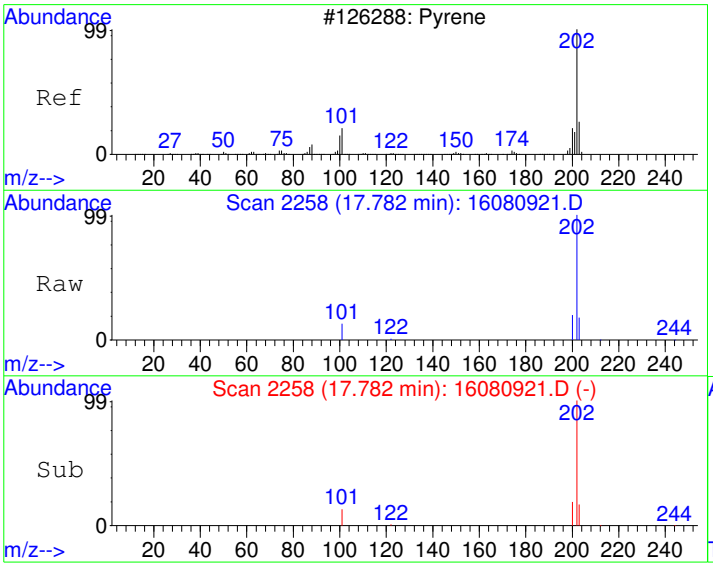


#14
Fluoranthene
Concen: 91.63 ug/kg
RT: 17.20 min Scan# 2063
Delta R.T. -0.03 min
Lab File: 16080921.D
Acq: 9 Aug 2016 9:49 pm

Tgt Ion:202 Resp: 39857

Ion	Ratio	Lower	Upper
202	100		
101	11.6	0.0	42.1
203	17.4	0.0	47.9

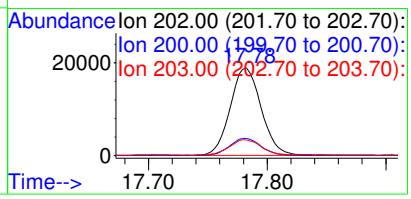


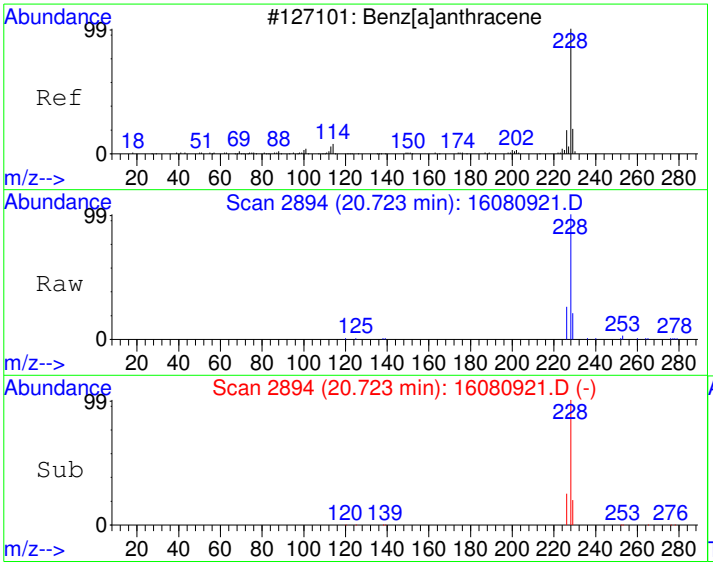


#15
Pyrene
Concen: 77.11 ug/kg
RT: 17.78 min Scan# 2258
Delta R.T. -0.03 min
Lab File: 16080921.D
Acq: 9 Aug 2016 9:49 pm

Tgt Ion:202 Resp: 34010

Ion	Ratio	Lower	Upper
202	100		
200	19.5	0.0	49.7
203	17.4	0.0	47.8

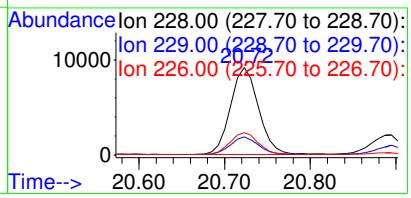


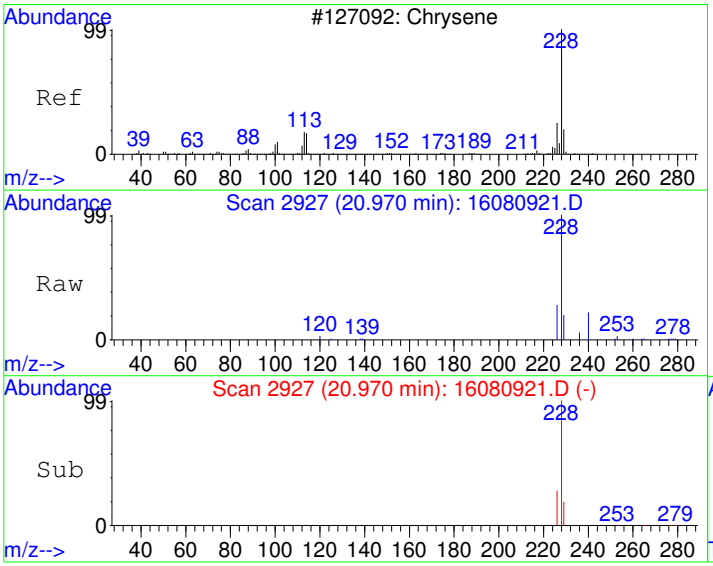


#18
Benzo[a]anthracene
Concen: 43.42 ug/kg
RT: 20.72 min Scan# 2894
Delta R.T. -0.04 min
Lab File: 16080921.D
Acq: 9 Aug 2016 9:49 pm

Tgt Ion:228 Resp: 20581

Ion	Ratio	Lower	Upper
228	100		
229	20.0	0.0	49.8
226	25.1	0.0	55.8

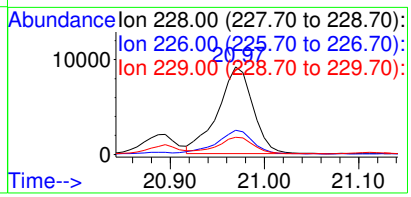


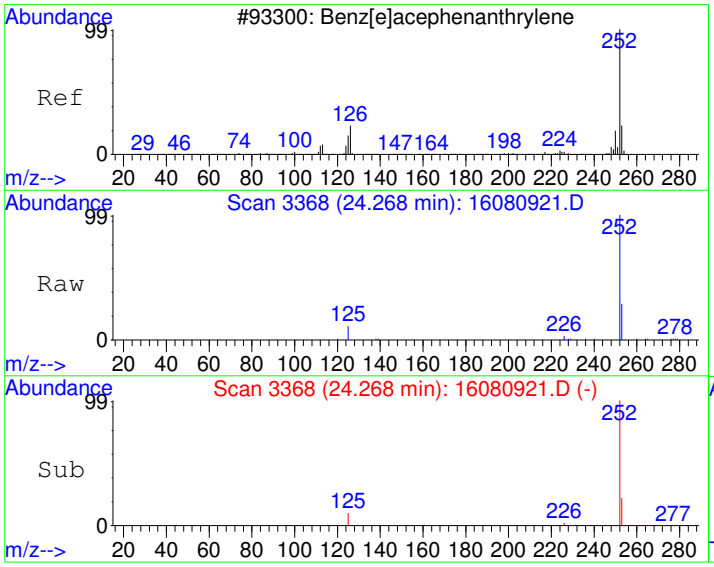


#19
Chrysene
Concen: 51.44 ug/kg
RT: 20.97 min Scan# 2927
Delta R.T. -0.05 min
Lab File: 16080921.D
Acq: 9 Aug 2016 9:49 pm

Tgt Ion:228 Resp: 23456

Ion	Ratio	Lower	Upper
228	100		
226	27.3	0.0	58.1
229	19.2	0.0	50.0

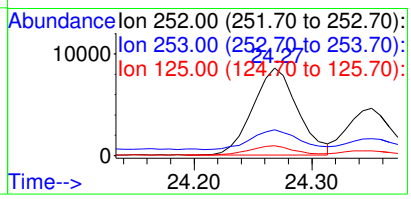


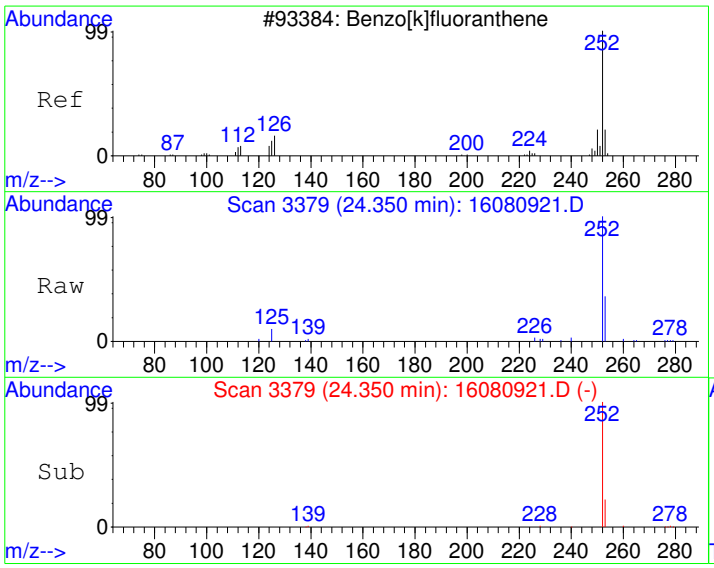


#21
Benzo[b]fluoranthene
Concen: 43.31 ug/kg
RT: 24.27 min Scan# 3368
Delta R.T. -0.06 min
Lab File: 16080921.D
Acq: 9 Aug 2016 9:49 pm

Tgt Ion:252 Resp: 22614

Ion	Ratio	Lower	Upper
252	100		
253	22.0	0.0	52.0
125	10.4	0.0	40.6

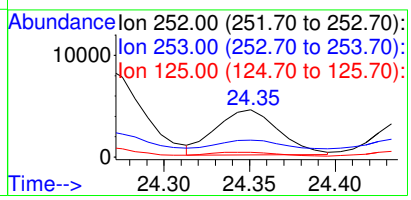


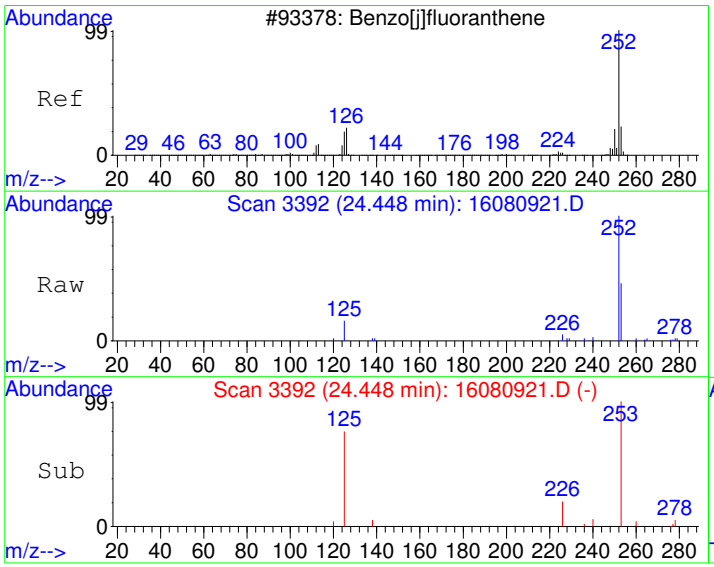


#22
Benzo[k]fluoranthene
Concen: 23.60 ug/kg
RT: 24.35 min Scan# 3379
Delta R.T. -0.06 min
Lab File: 16080921.D
Acq: 9 Aug 2016 9:49 pm

Tgt Ion:252 Resp: 11306

Ion	Ratio	Lower	Upper
252	100		
253	20.4	2.2	42.2
125	9.2	0.0	30.3

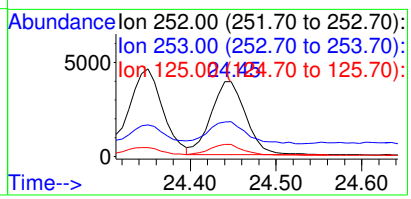


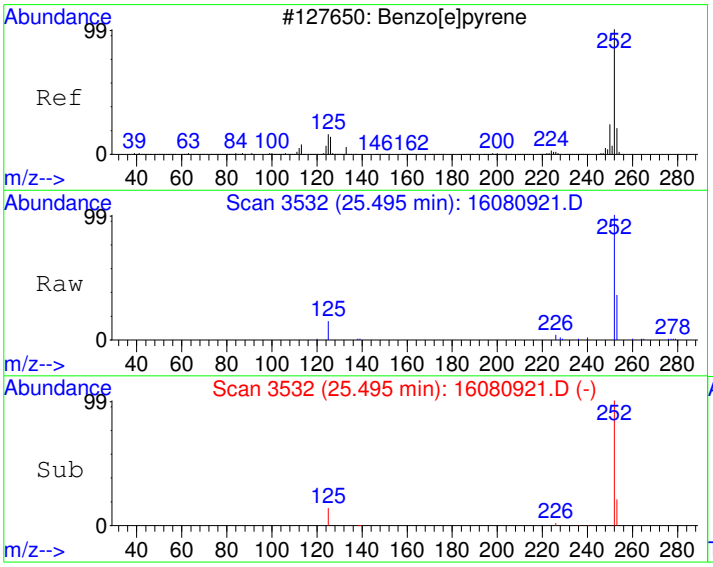


#23
Benzo(j)fluoranthene
Concen: 23.69 ug/kg
RT: 24.45 min Scan# 3392
Delta R.T. -0.06 min
Lab File: 16080921.D
Acq: 9 Aug 2016 9:49 pm

Tgt Ion:252 Resp: 10905

Ion	Ratio	Lower	Upper
252	100		
253	29.1	2.2	42.2
125	14.5	0.0	34.4

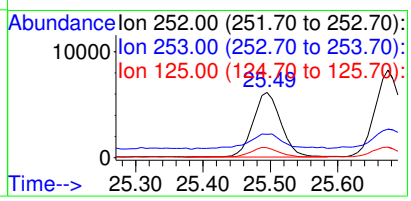


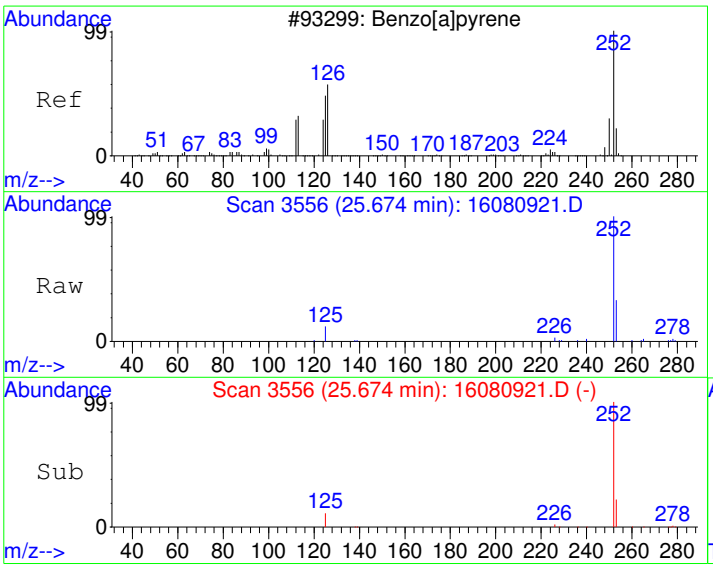


#24
Benzo[e]pyrene
Concen: 34.33 ug/kg
RT: 25.49 min Scan# 3532
Delta R.T. -0.06 min
Lab File: 16080921.D
Acq: 9 Aug 2016 9:49 pm

Tgt Ion:252 Resp: 17396

Ion	Ratio	Lower	Upper
252	100		
253	21.5	2.2	42.2
125	14.1	0.0	35.7

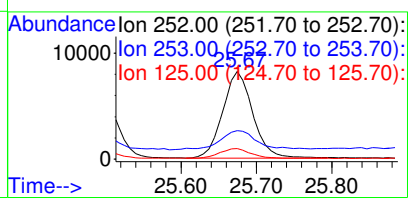


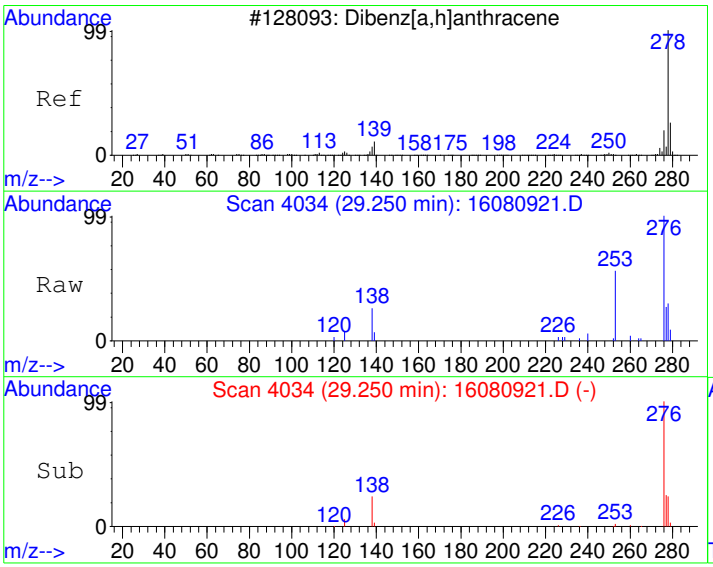


#25
Benzo[a]pyrene
Concen: 44.73 ug/kg
RT: 25.67 min Scan# 3556
Delta R.T. -0.06 min
Lab File: 16080921.D
Acq: 9 Aug 2016 9:49 pm

Tgt Ion:252 Resp: 22567

Ion	Ratio	Lower	Upper
252	100		
253	21.0	2.0	42.0
125	11.2	0.0	31.6

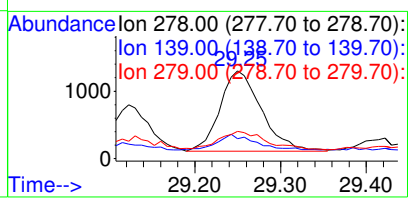


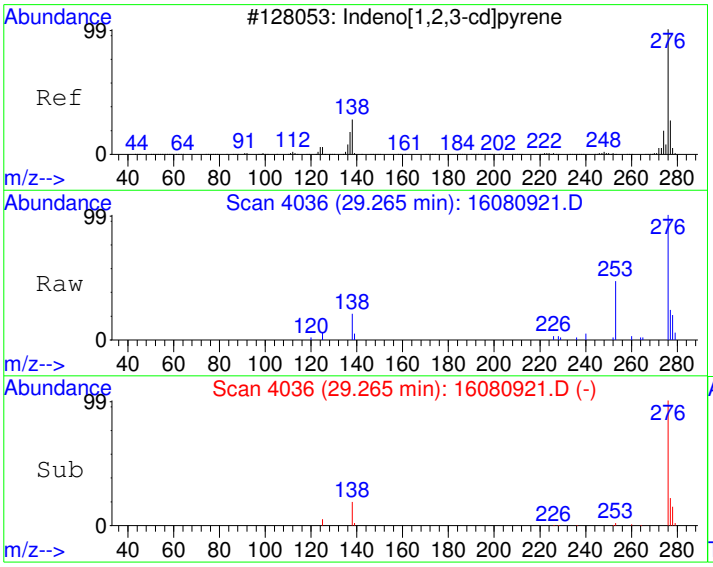


#26
Dibenz[a,h]anthracene
Concen: 8.15 ug/kg
RT: 29.25 min Scan# 4034
Delta R.T. -0.07 min
Lab File: 16080921.D
Acq: 9 Aug 2016 9:49 pm

Tgt Ion:278 Resp: 3981

Ion	Ratio	Lower	Upper
278	100		
139	13.4	0.0	33.8
279	22.9	3.9	43.9

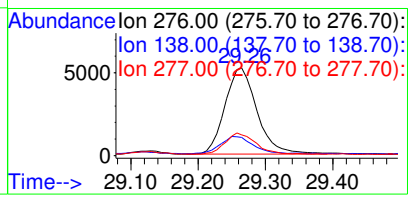


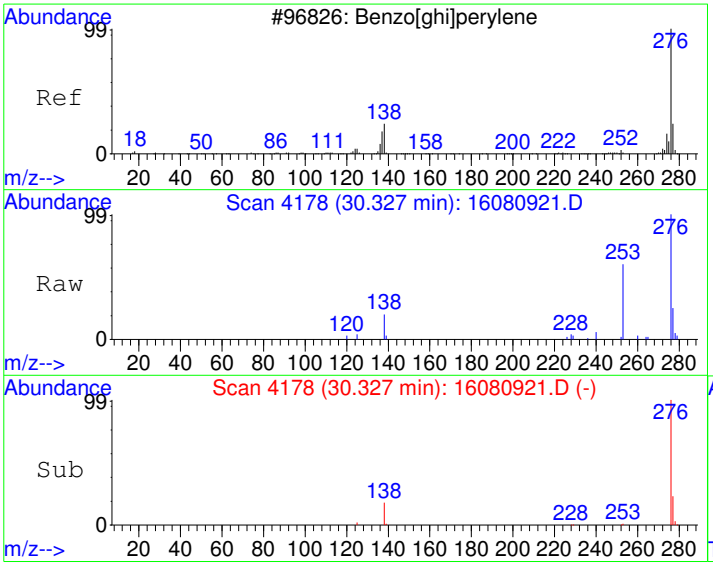


#27
Indeno[1,2,3-cd]pyrene
Concen: 29.83 ug/kg
RT: 29.26 min Scan# 4036
Delta R.T. -0.06 min
Lab File: 16080921.D
Acq: 9 Aug 2016 9:49 pm

Tgt Ion:276 Resp: 17285

Ion	Ratio	Lower	Upper
276	100		
138	19.1	4.8	44.8
277	22.4	5.6	45.6

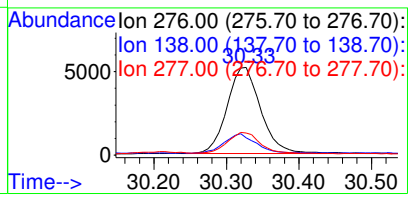




#28
Benzo[g,h,i]perylene
Concen: 34.34 ug/kg
RT: 30.33 min Scan# 4178
Delta R.T. -0.07 min
Lab File: 16080921.D
Acq: 9 Aug 2016 9:49 pm

Tgt Ion:276 Resp: 16665

Ion	Ratio	Lower	Upper
276	100		
138	18.0	0.0	38.1
277	23.7	4.1	44.1



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160809\16080922.D Vial: 22
Acq On : 9 Aug 2016 10:29 pm Operator: DEW
Sample : 1607317-19A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 10 7:16 2016 Quant Results File: PP160801.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration
DataAcq Meth : PP160801

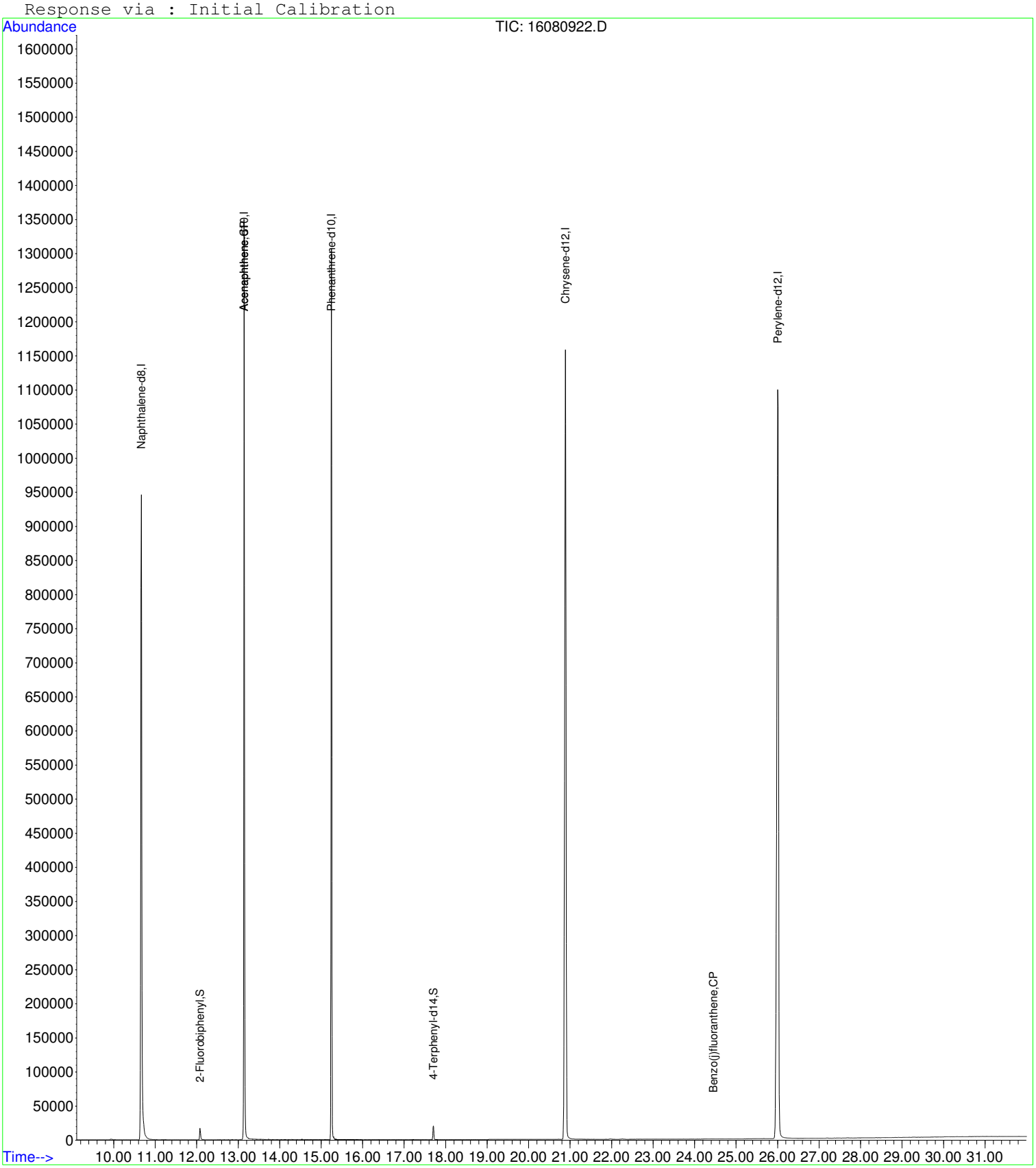
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.66	136	1516995	4000.00	ug/kg	108
5) Acenaphthene-d10	13.14	164	800962	4000.00	ug/kg	134
11) Phenanthrene-d10	15.25	188	1523251	4000.00	ug/kg	96
17) Chrysene-d12	20.89	240	2046727	4000.00	ug/kg	112
20) Perylene-d12	26.00	264	2198149	4000.00	ug/kg	114
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.08	172	20981	75.10	ug/kg	-0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.88%#		
16) 4-Terphenyl-d14	17.70	244	28878	80.33	ug/kg	-0.04
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.01%#		
Target Compounds						Qvalue
9) Acenaphthene	13.14	154	2709	~~13.19~~	~~ug/kg#~~	~~11~~
23) Benzo(j)fluoranthene	24.45	252	285	0.64	ug/kg#	45

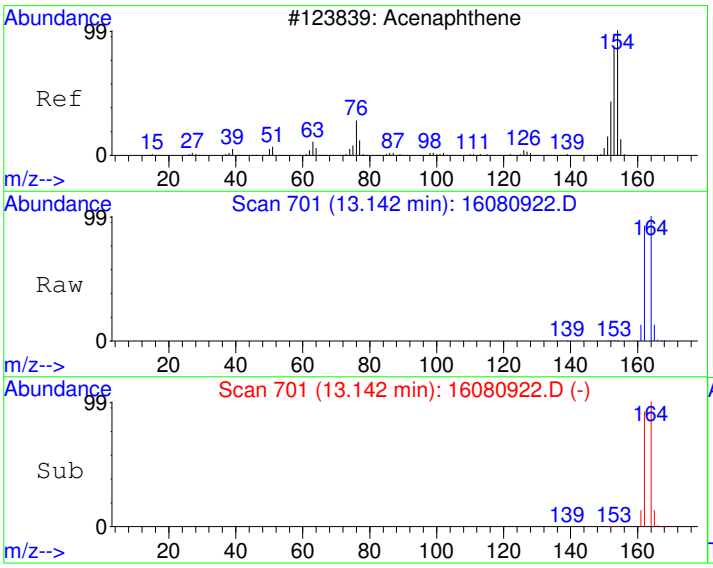
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160809\16080922.D Vial: 22
Acq On : 9 Aug 2016 10:29 pm Operator: DEW
Sample : 1607317-19A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 10 7:16 2016 Quant Results File: PP160801.RES

Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration

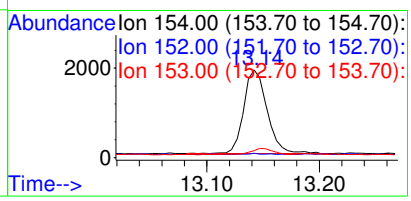


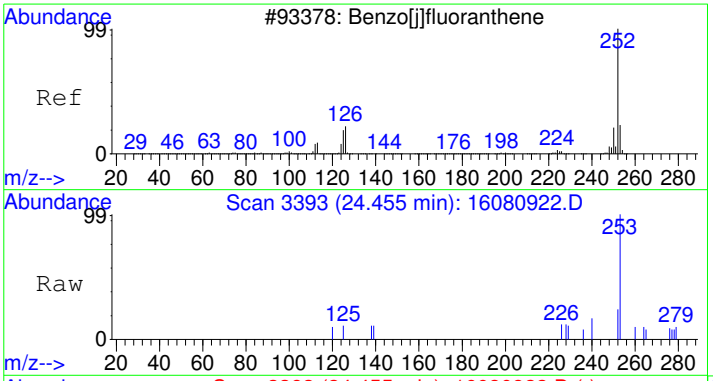


#9
Acenaphthene
Concen: 13.19 ug/kg
RT: 13.14 min Scan# 701
Delta R.T. -0.07 min
Lab File: 16080922.D
Acq: 9 Aug 2016 10:29 pm

Tgt Ion:154 Resp: 2709

Ion	Ratio	Lower	Upper
154	100		
152	1.6	19.1	79.1#
153	4.7	76.2	136.2#

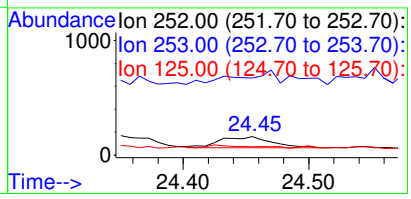




#23
Benzo(j)fluoranthene
Concen: 0.64 ug/kg
RT: 24.45 min Scan# 3393
Delta R.T. -0.05 min
Lab File: 16080922.D
Acq: 9 Aug 2016 10:29 pm

Tgt Ion:252 Resp: 285

Ion	Ratio	Lower	Upper
252	100		
253	59.0	2.2	42.2#
125	6.0	0.0	34.4



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160809\16080923.D Vial: 23
Acq On : 9 Aug 2016 11:09 pm Operator: DEW
Sample : 1607317-20A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 10 7:17 2016 Quant Results File: PP160801.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration
DataAcq Meth : PP160801

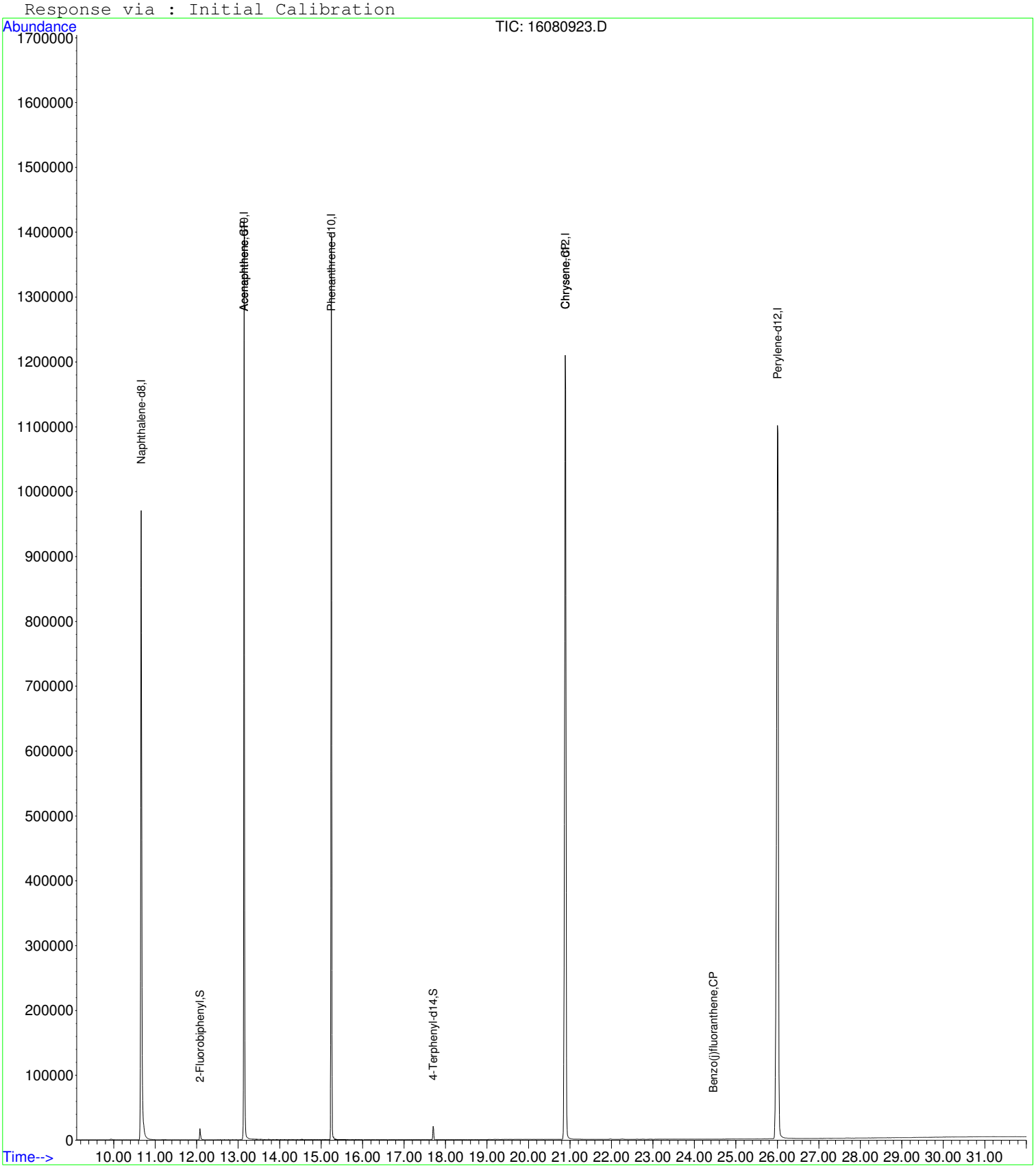
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.66	136	1591225	4000.00	ug/kg	113
5) Acenaphthene-d10	13.14	164	847866	4000.00	ug/kg	141
11) Phenanthrene-d10	15.25	188	1587865	4000.00	ug/kg	100
17) Chrysene-d12	20.89	240	2165584	4000.00	ug/kg	118
20) Perylene-d12	26.00	264	2343390	4000.00	ug/kg	121
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.08	172	21189	71.65	ug/kg	-0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.79%#		
16) 4-Terphenyl-d14	17.70	244	29765	79.43	ug/kg	-0.04
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.99%#		
Target Compounds						Qvalue
9) Acenaphthene	13.14	154	2858	~~13.14~~	~~ug/kg#~~	~~10~~
19) Chrysene	20.89	228	4715	~~10.04~~	~~ug/kg~~	~~72~~
23) Benzo(j)fluoranthene	24.45	252	101	0.21	ug/kg#	60

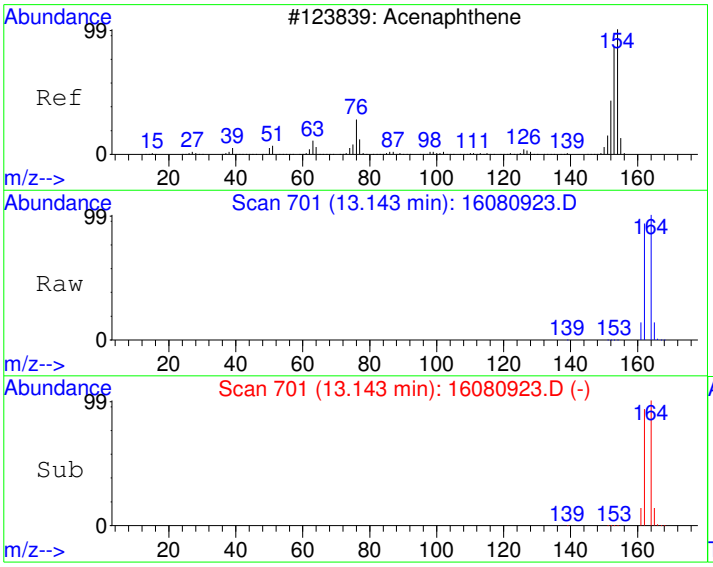
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160809\16080923.D Vial: 23
Acq On : 9 Aug 2016 11:09 pm Operator: DEW
Sample : 1607317-20A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 10 7:17 2016 Quant Results File: PP160801.RES

Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration

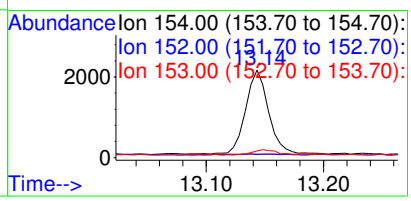


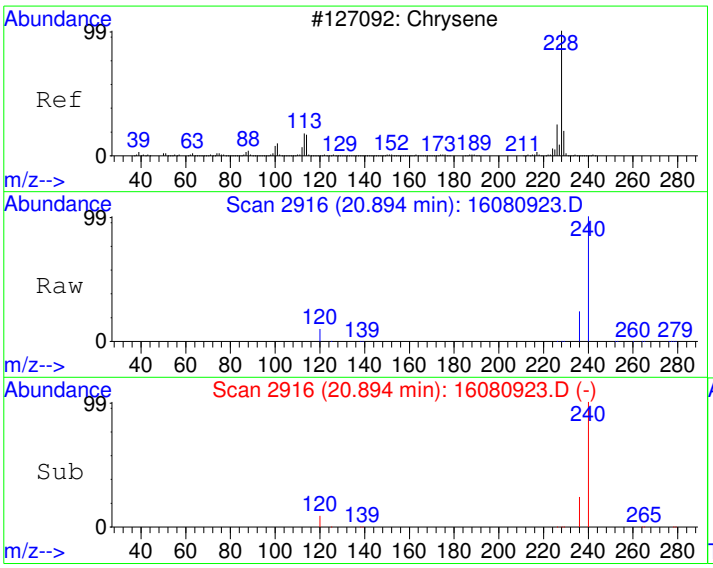


#9
Acenaphthene
Concen: 13.14 ug/kg
RT: 13.14 min Scan# 701
Delta R.T. -0.07 min
Lab File: 16080923.D
Acq: 9 Aug 2016 11:09 pm

Tgt Ion:154 Resp: 2858

Ion	Ratio	Lower	Upper
154	100		
152	0.7	19.1	79.1#
153	4.6	76.2	136.2#

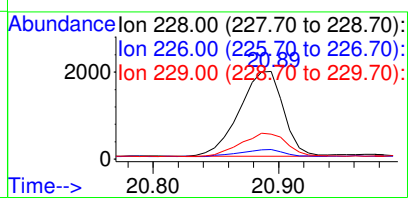


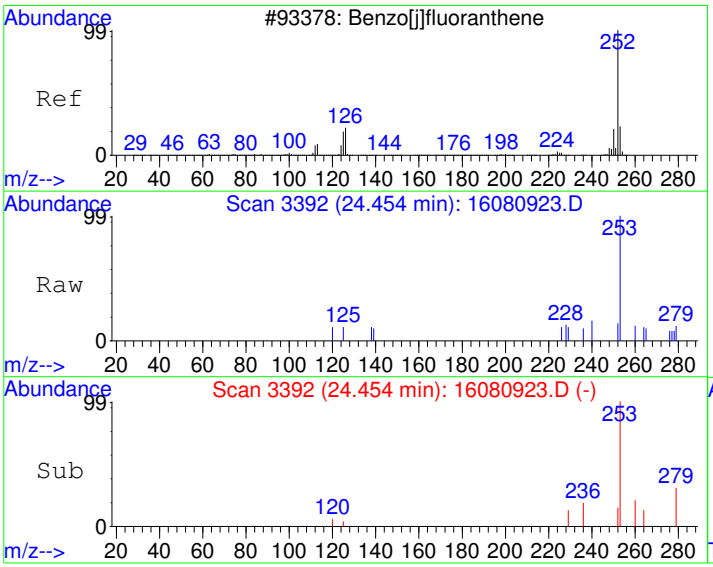


#19
Chrysene
Concen: 10.04 ug/kg
RT: 20.89 min Scan# 2916
Delta R.T. -0.13 min
Lab File: 16080923.D
Acq: 9 Aug 2016 11:09 pm

Tgt Ion:228 Resp: 4715

Ion	Ratio	Lower	Upper
228	100		
226	8.0	0.0	58.1
229	26.3	0.0	50.0

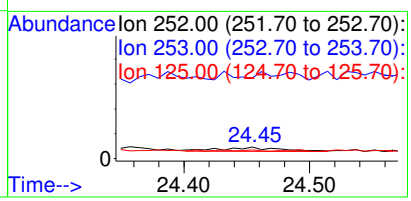




#23
Benzo(j)fluoranthene
Concen: 0.21 ug/kg
RT: 24.45 min Scan# 3392
Delta R.T. -0.05 min
Lab File: 16080923.D
Acq: 9 Aug 2016 11:09 pm

Tgt Ion:252 Resp: 101

Ion	Ratio	Lower	Upper
252	100		
253	10.0	2.2	42.2
125	40.0	0.0	34.4#



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160809\16080924.D Vial: 24
Acq On : 9 Aug 2016 11:48 pm Operator: DEW
Sample : 1607317-21A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 10 7:17 2016 Quant Results File: PP160801.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration
DataAcq Meth : PP160801

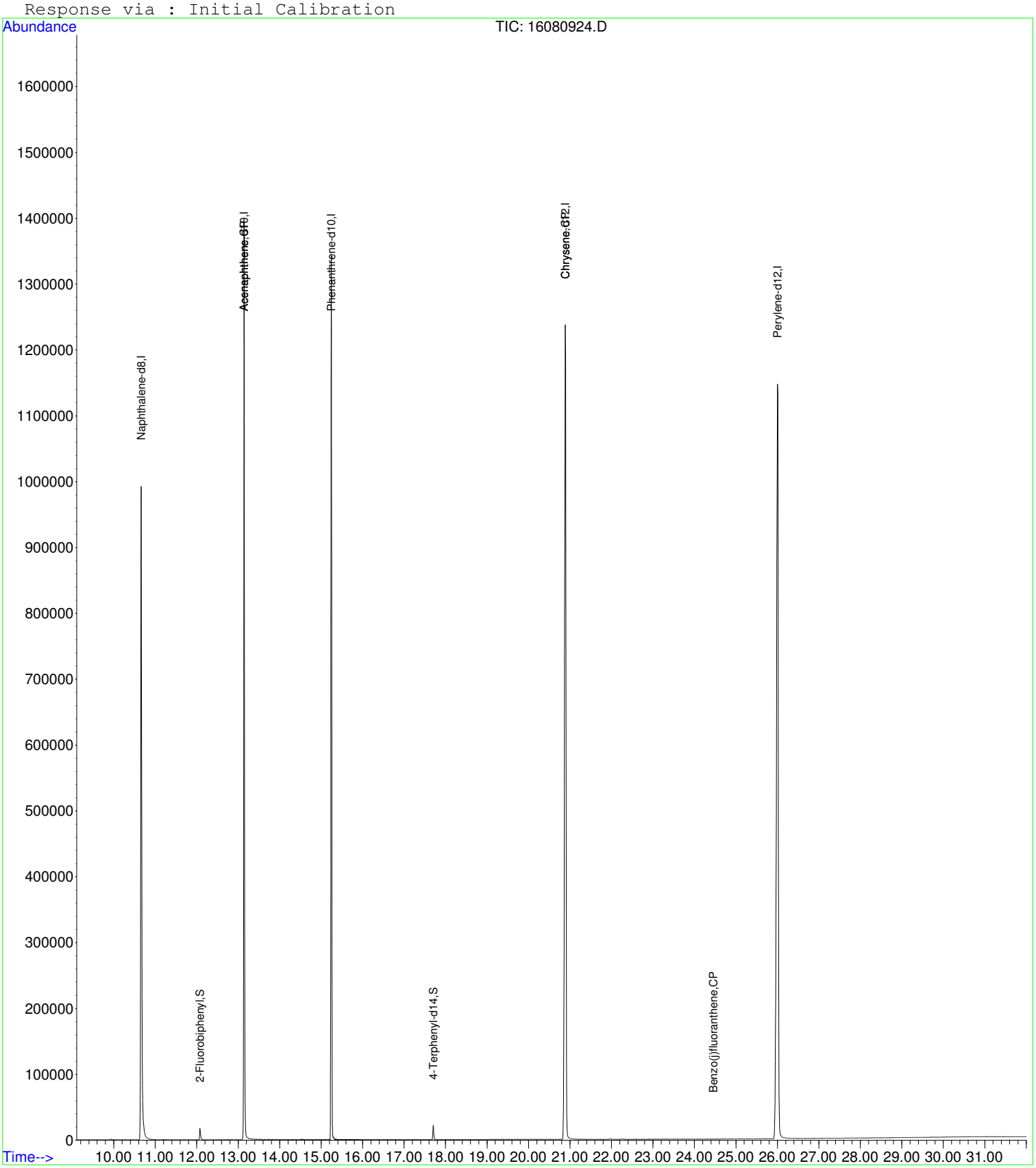
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.66	136	1577455	4000.00	ug/kg	112
5) Acenaphthene-d10	13.14	164	837040	4000.00	ug/kg	140
11) Phenanthrene-d10	15.25	188	1575756	4000.00	ug/kg	99
17) Chrysene-d12	20.89	240	2197667	4000.00	ug/kg	120
20) Perylene-d12	26.00	264	2365020	4000.00	ug/kg	123
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.08	172	21041	72.07	ug/kg	-0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.80%#		
16) 4-Terphenyl-d14	17.70	244	30484	81.98	ug/kg	-0.03
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.05%#		
Target Compounds						Qvalue
9) Acenaphthene	13.14	154	2768	~~12.89~~	~~ug/kg#~~	~~10~~
19) Chrysene	20.89	228	4769	~~10.01~~	~~ug/kg~~	~~70~~
23) Benzo(j)fluoranthene	24.45	252	51	0.11	ug/kg#	1

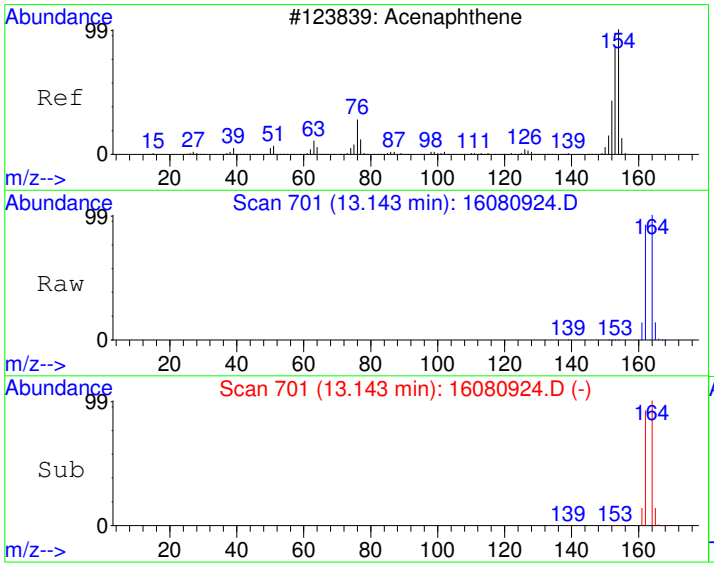
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160809\16080924.D Vial: 24
Acq On : 9 Aug 2016 11:48 pm Operator: DEW
Sample : 1607317-21A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 10 7:17 2016 Quant Results File: PP160801.RES

Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration

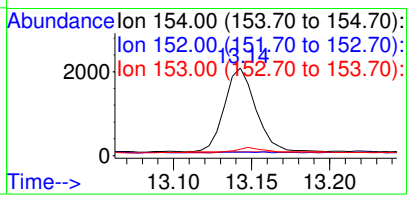


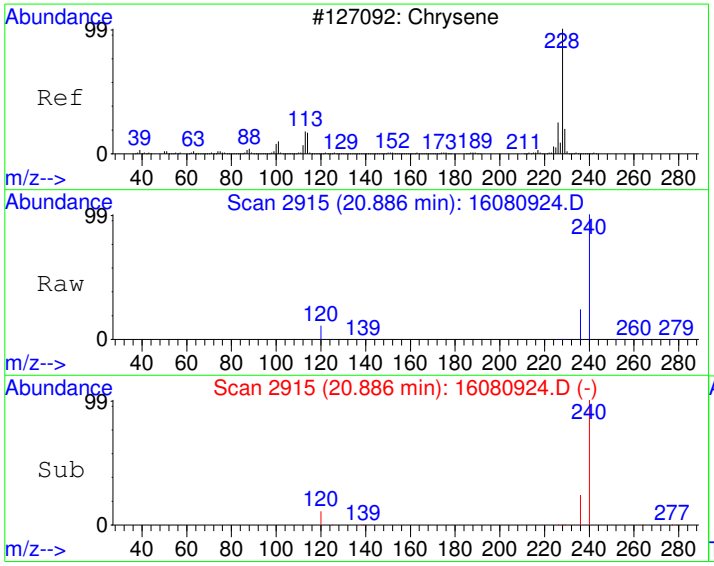


#9
Acenaphthene
Concen: 12.89 ug/kg
RT: 13.14 min Scan# 701
Delta R.T. -0.07 min
Lab File: 16080924.D
Acq: 9 Aug 2016 11:48 pm

Tgt Ion:154 Resp: 2768

Ion	Ratio	Lower	Upper
154	100		
152	0.7	19.1	79.1#
153	3.8	76.2	136.2#

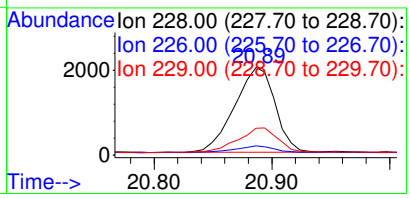


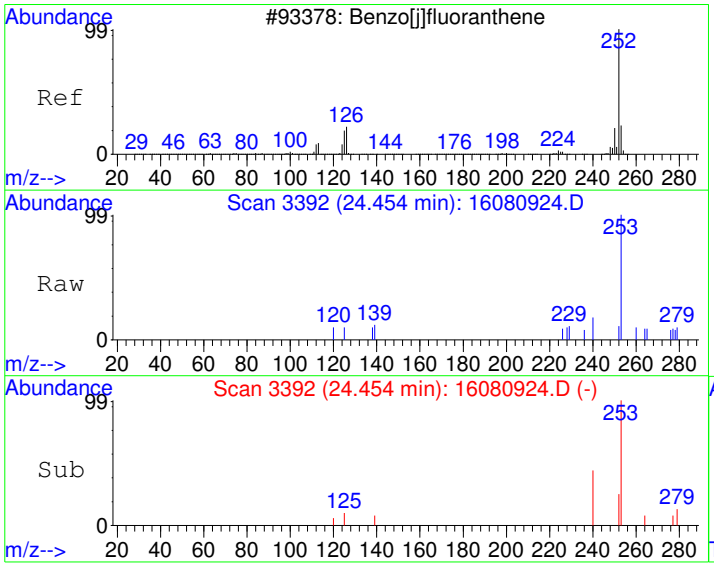


#19
Chrysene
Concen: 10.01 ug/kg
RT: 20.89 min Scan# 2915
Delta R.T. -0.14 min
Lab File: 16080924.D
Acq: 9 Aug 2016 11:48 pm

Tgt Ion:228 Resp: 4769

Ion	Ratio	Lower	Upper
228	100		
226	8.1	0.0	58.1
229	28.2	0.0	50.0

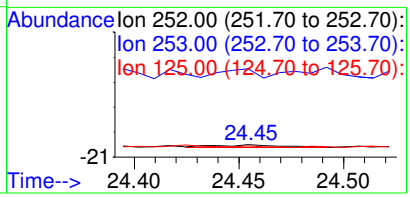




#23
Benzo(j)fluoranthene
Concen: 0.11 ug/kg
RT: 24.45 min Scan# 3392
Delta R.T. -0.05 min
Lab File: 16080924.D
Acq: 9 Aug 2016 11:48 pm

Tgt Ion:252 Resp: 51

Ion	Ratio	Lower	Upper
252	100		
253	195.7	2.2	42.2#
125	21.7	0.0	34.4



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160809\16080925.D Vial: 25
Acq On : 10 Aug 2016 12:28 am Operator: DEW
Sample : 1607317-22A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 10 7:17 2016 Quant Results File: PP160801.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration
DataAcq Meth : PP160801

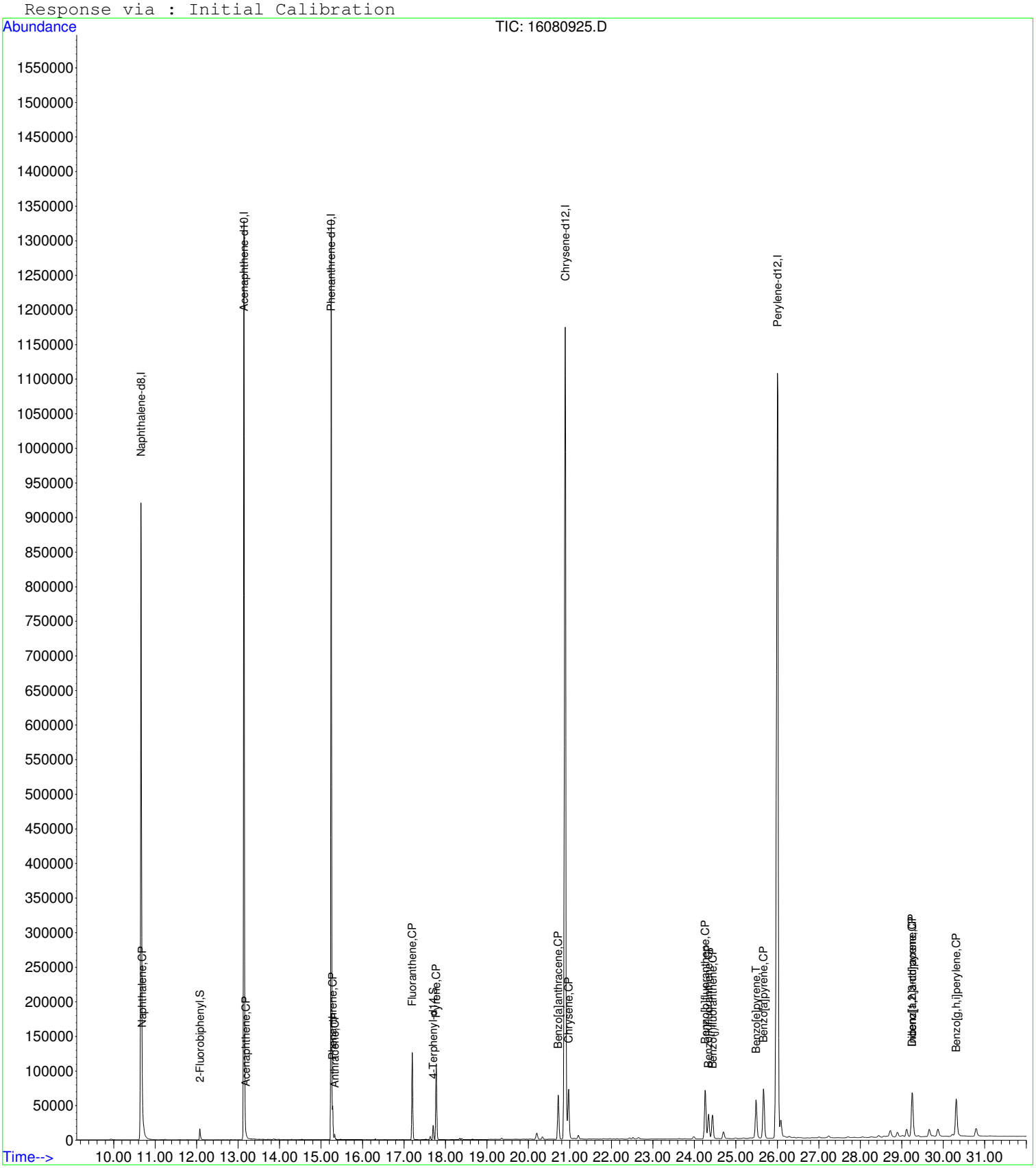
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.66	136	1496861	4000.00	ug/kg	107
5) Acenaphthene-d10	13.14	164	792952	4000.00	ug/kg	132
11) Phenanthrene-d10	15.25	188	1515943	4000.00	ug/kg	95
17) Chrysene-d12	20.89	240	2059519	4000.00	ug/kg	112
20) Perylene-d12	26.00	264	2228589	4000.00	ug/kg	116
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.08	172	20445	73.92	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.85%#		
16) 4-Terphenyl-d14	17.70	244	29292	81.88	ug/kg	-0.04
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.05%#		
Target Compounds						Qvalue
2) Naphthalene	10.70	128	3109	9.13	ug/kg	99
9) Acenaphthene	13.19	154	1669	8.21	ug/kg	98
12) Phenanthrene	15.28	178	38900	108.23	ug/kg	99
13) Anthracene	15.33	178	7207	19.06	ug/kg	99
14) Fluoranthene	17.20	202	139792	328.21	ug/kg	98
15) Pyrene	17.78	202	129020	298.74	ug/kg	100
18) Benzo[a]anthracene	20.71	228	101443	218.53	ug/kg	100
19) Chrysene	20.97	228	121843	272.84	ug/kg	99
21) Benzo[b]fluoranthene	24.26	252	139343	270.84	ug/kg	99
22) Benzo[k]fluoranthene	24.34	252	67019	141.99	ug/kg	97
23) Benzo(j)fluoranthene	24.44	252	64066	141.24	ug/kg	90
24) Benzo[e]pyrene	25.49	252	107614	215.54	ug/kg	98
25) Benzo[a]pyrene	25.67	252	144416	290.52	ug/kg	100
26) Dibenz[a,h]anthracene	29.25	278	24189	50.28	ug/kg	97
27) Indeno[1,2,3-cd]pyrene	29.26	276	112341	196.80	ug/kg	93
28) Benzo[g,h,i]perylene	30.31	276	110902	231.96	ug/kg	97

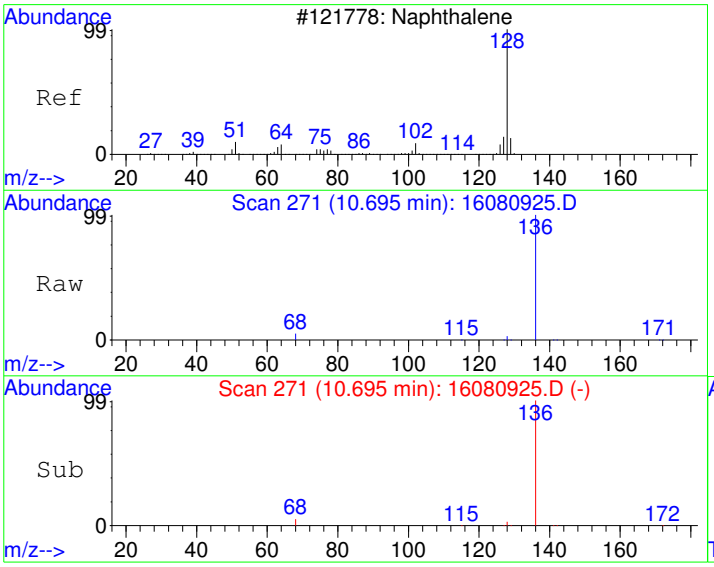
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160809\16080925.D Vial: 25
Acq On : 10 Aug 2016 12:28 am Operator: DEW
Sample : 1607317-22A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 10 7:17 2016 Quant Results File: PP160801.RES

Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration

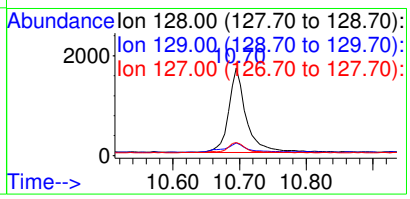


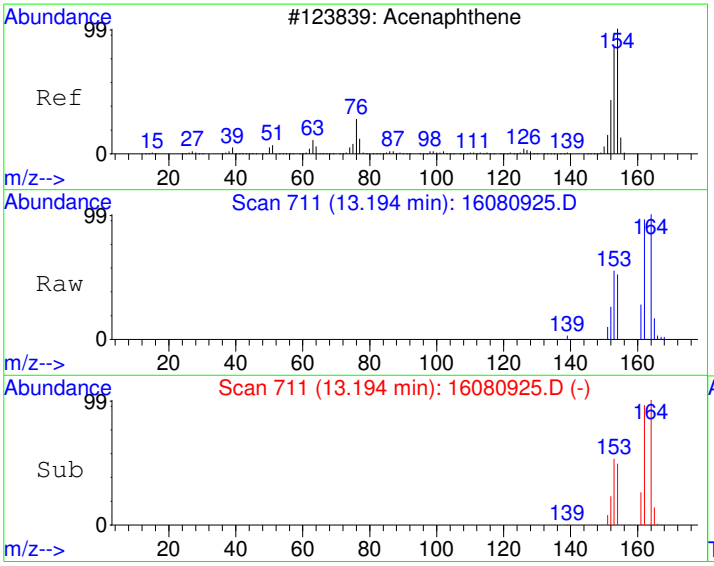


#2
Naphthalene
Concen: 9.13 ug/kg
RT: 10.70 min Scan# 271
Delta R.T. -0.02 min
Lab File: 16080925.D
Acq: 10 Aug 2016 12:28 am

Tgt Ion:128 Resp: 3109

Ion	Ratio	Lower	Upper
128	100		
129	10.9	0.0	41.2
127	12.1	0.0	42.5

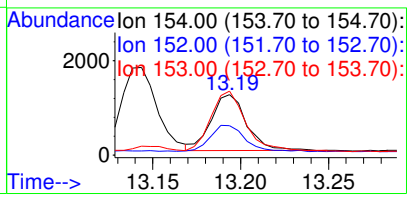


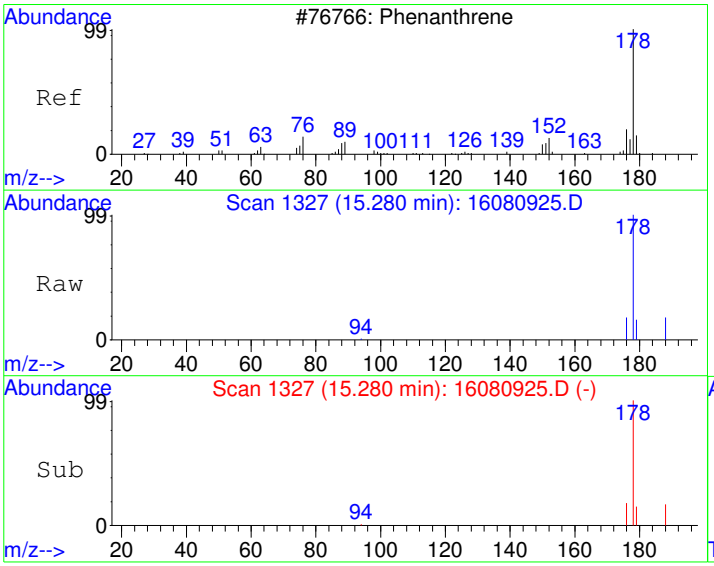


#9
Acenaphthene
Concen: 8.21 ug/kg
RT: 13.19 min Scan# 711
Delta R.T. -0.02 min
Lab File: 16080925.D
Acq: 10 Aug 2016 12:28 am

Tgt Ion:154 Resp: 1669

Ion	Ratio	Lower	Upper
154	100		
152	46.5	19.1	79.1
153	106.7	76.2	136.2

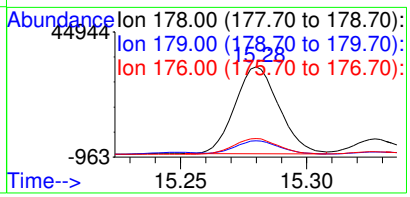


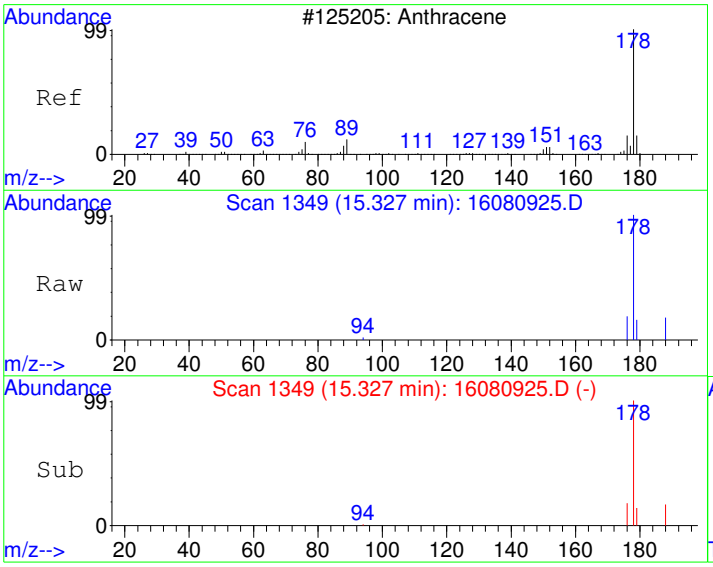


#12
Phenanthrene
Concen: 108.23 ug/kg
RT: 15.28 min Scan# 1327
Delta R.T. -0.02 min
Lab File: 16080925.D
Acq: 10 Aug 2016 12:28 am

Tgt Ion:178 Resp: 38900

Ion	Ratio	Lower	Upper
178	100		
179	15.0	0.0	45.7
176	18.4	0.0	48.7

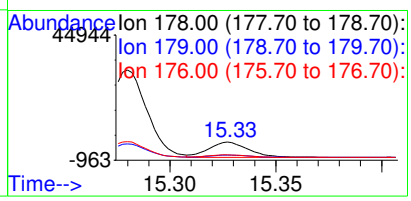


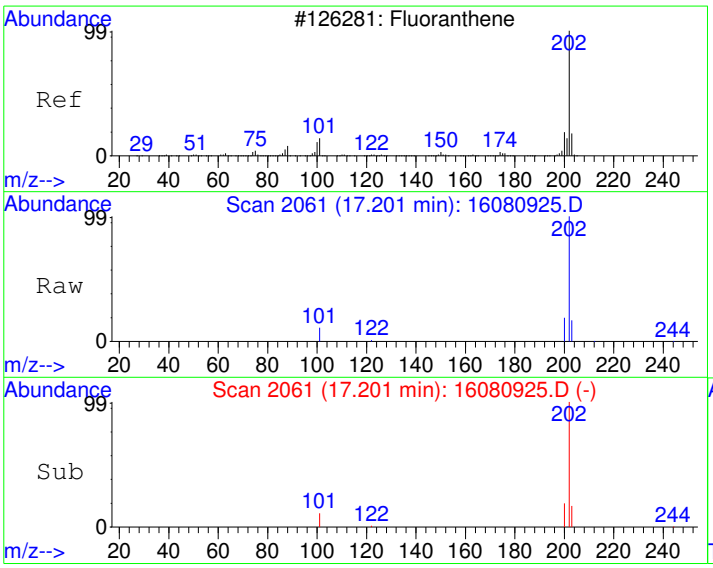


#13
Anthracene
Concen: 19.06 ug/kg
RT: 15.33 min Scan# 1349
Delta R.T. -0.02 min
Lab File: 16080925.D
Acq: 10 Aug 2016 12:28 am

Tgt Ion:178 Resp: 7207

Ion	Ratio	Lower	Upper
178	100		
179	14.8	0.0	45.7
176	17.8	0.0	47.9

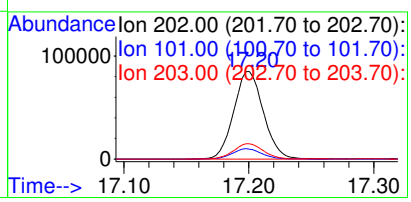


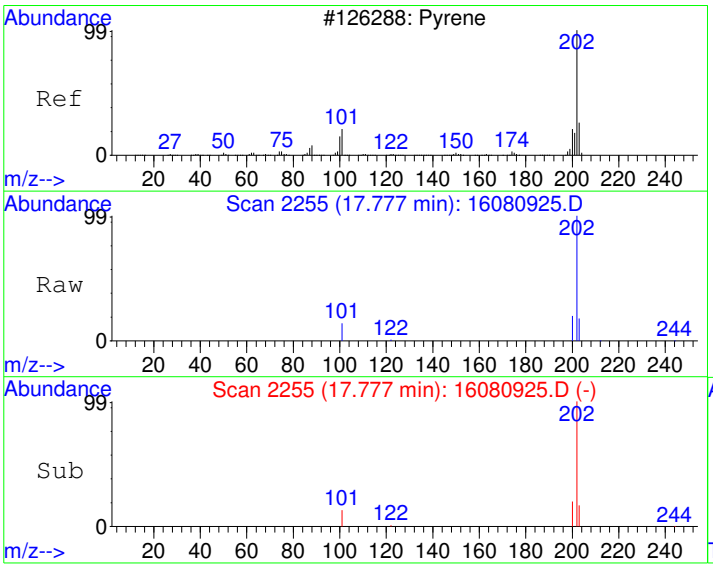


#14
Fluoranthene
Concen: 328.21 ug/kg
RT: 17.20 min Scan# 2061
Delta R.T. -0.03 min
Lab File: 16080925.D
Acq: 10 Aug 2016 12:28 am

Tgt Ion:202 Resp: 139792

Ion	Ratio	Lower	Upper
202	100		
101	11.2	0.0	42.1
203	17.3	0.0	47.9

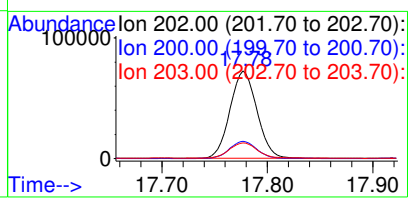


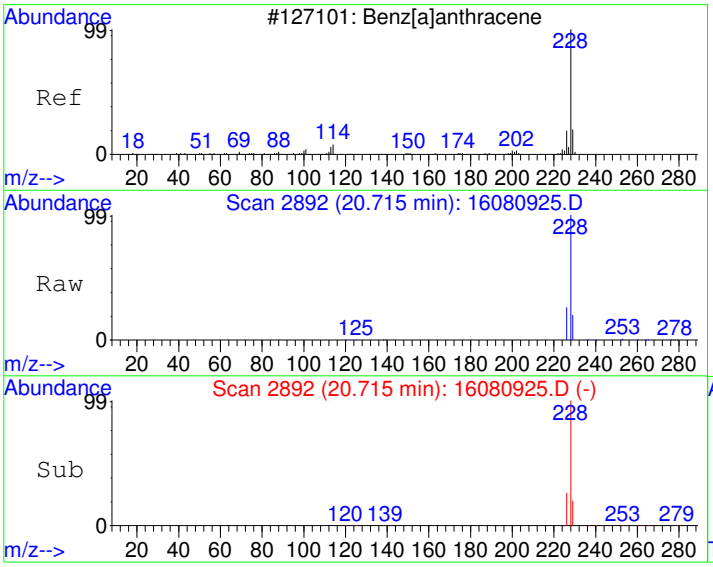


#15
Pyrene
Concen: 298.74 ug/kg
RT: 17.78 min Scan# 2255
Delta R.T. -0.04 min
Lab File: 16080925.D
Acq: 10 Aug 2016 12:28 am

Tgt Ion:202 Resp: 129020

Ion	Ratio	Lower	Upper
202	100		
200	19.6	0.0	49.7
203	17.8	0.0	47.8

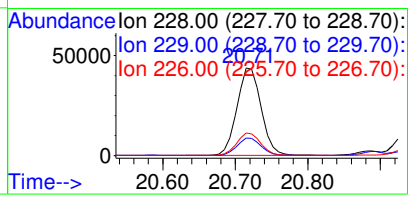


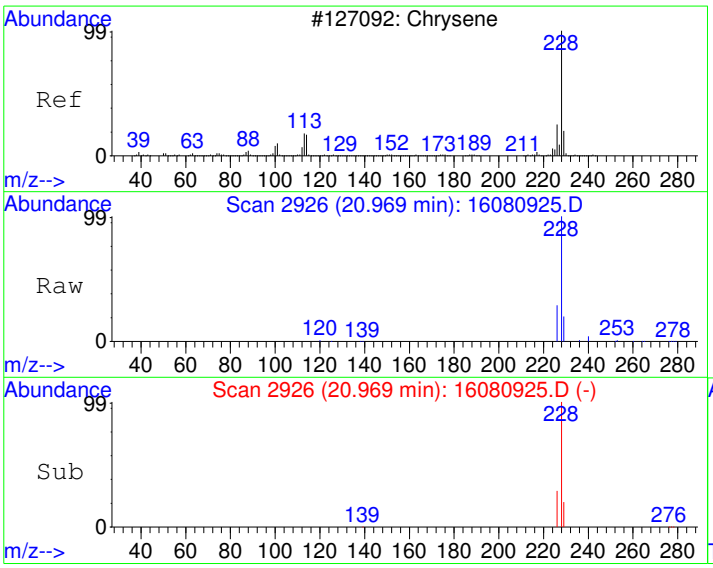


#18
Benzo[a]anthracene
Concen: 218.53 ug/kg
RT: 20.71 min Scan# 2892
Delta R.T. -0.05 min
Lab File: 16080925.D
Acq: 10 Aug 2016 12:28 am

Tgt Ion:228 Resp: 101443

Ion	Ratio	Lower	Upper
228	100		
229	20.0	0.0	49.8
226	25.9	0.0	55.8

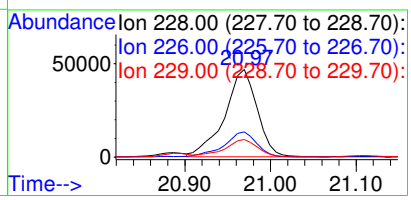


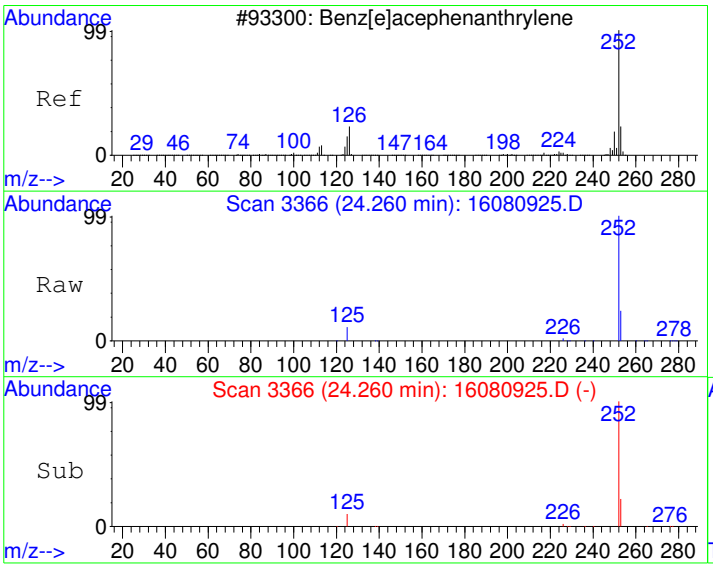


#19
Chrysene
Concen: 272.84 ug/kg
RT: 20.97 min Scan# 2926
Delta R.T. -0.05 min
Lab File: 16080925.D
Acq: 10 Aug 2016 12:28 am

Tgt Ion:228 Resp: 121843

Ion	Ratio	Lower	Upper
228	100		
226	28.7	0.0	58.1
229	19.8	0.0	50.0

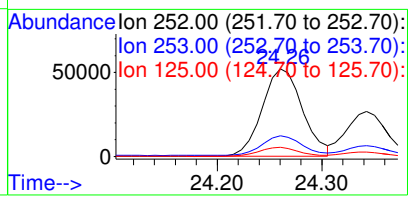


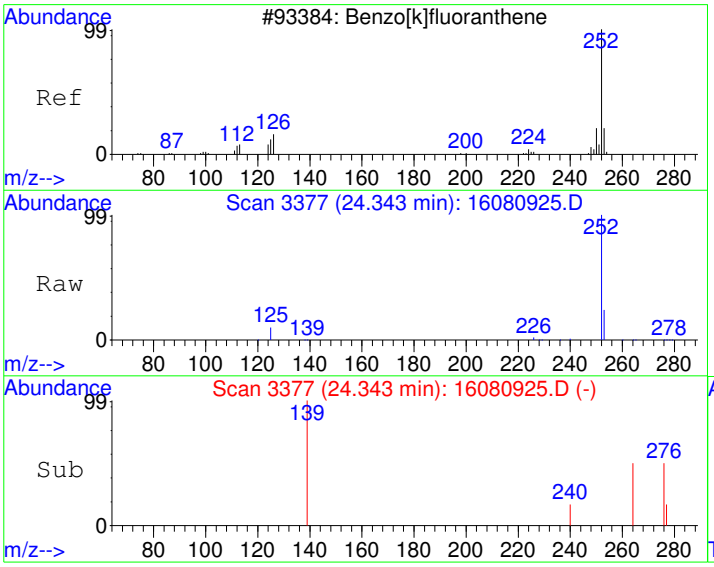


#21
Benzo[b]fluoranthene
Concen: 270.84 ug/kg
RT: 24.26 min Scan# 3366
Delta R.T. -0.07 min
Lab File: 16080925.D
Acq: 10 Aug 2016 12:28 am

Tgt Ion:252 Resp: 139343

Ion	Ratio	Lower	Upper
252	100		
253	22.4	0.0	52.0
125	10.5	0.0	40.6

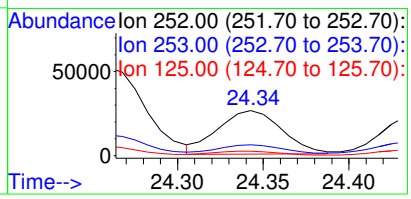


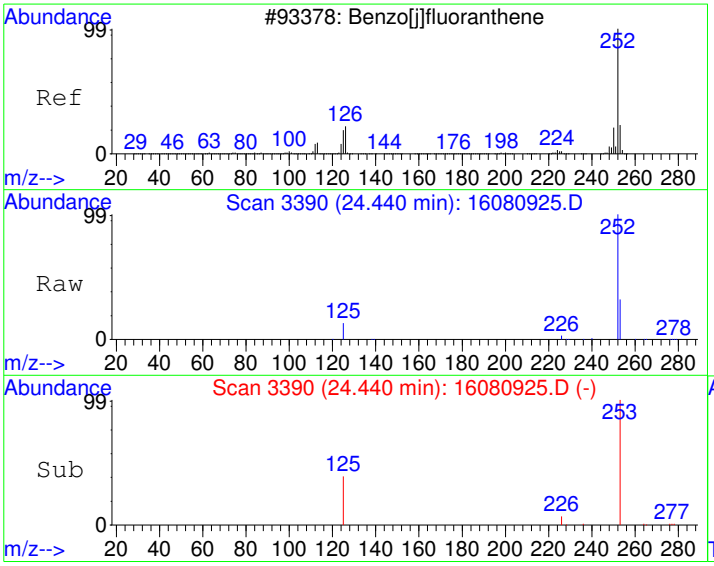


#22
Benzo[k]fluoranthene
Concen: 141.99 ug/kg
RT: 24.34 min Scan# 3377
Delta R.T. -0.07 min
Lab File: 16080925.D
Acq: 10 Aug 2016 12:28 am

Tgt Ion:252 Resp: 67019

Ion	Ratio	Lower	Upper
252	100		
253	20.2	2.2	42.2
125	9.8	0.0	30.3

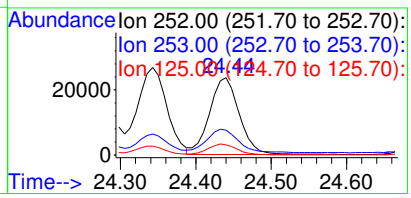


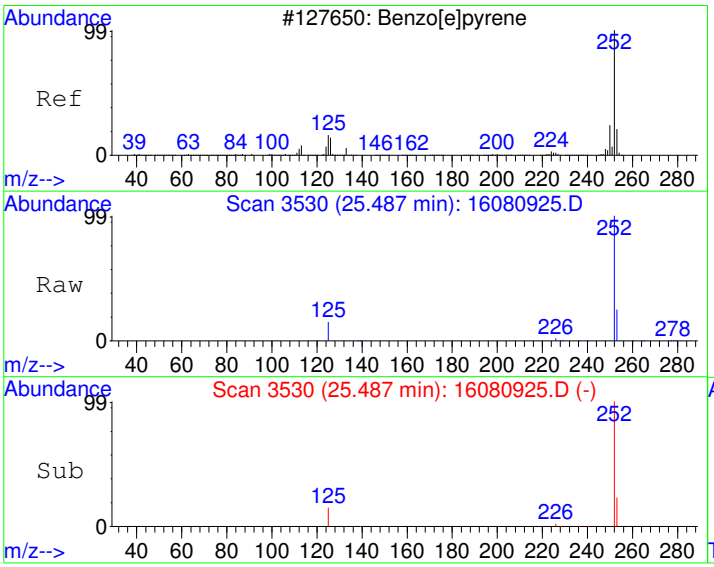


#23
Benzo(j)fluoranthene
Concen: 141.24 ug/kg
RT: 24.44 min Scan# 3390
Delta R.T. -0.07 min
Lab File: 16080925.D
Acq: 10 Aug 2016 12:28 am

Tgt Ion:252 Resp: 64066

Ion	Ratio	Lower	Upper
252	100		
253	29.2	2.2	42.2
125	13.2	0.0	34.4

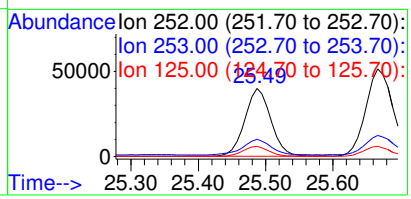


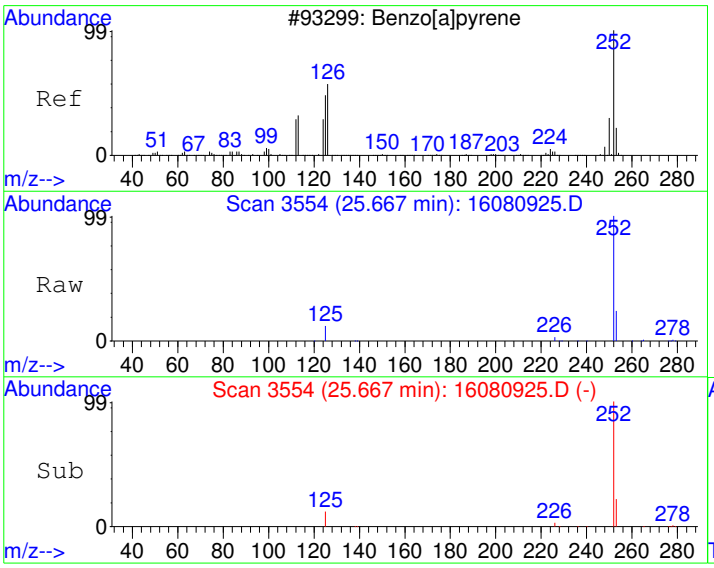


#24
Benzo[e]pyrene
Concen: 215.54 ug/kg
RT: 25.49 min Scan# 3530
Delta R.T. -0.07 min
Lab File: 16080925.D
Acq: 10 Aug 2016 12:28 am

Tgt Ion:252 Resp: 107614

Ion	Ratio	Lower	Upper
252	100		
253	22.8	2.2	42.2
125	14.6	0.0	35.7

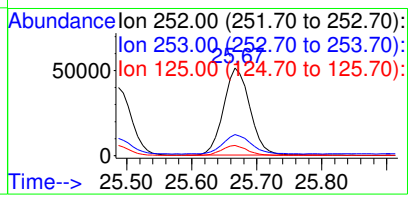


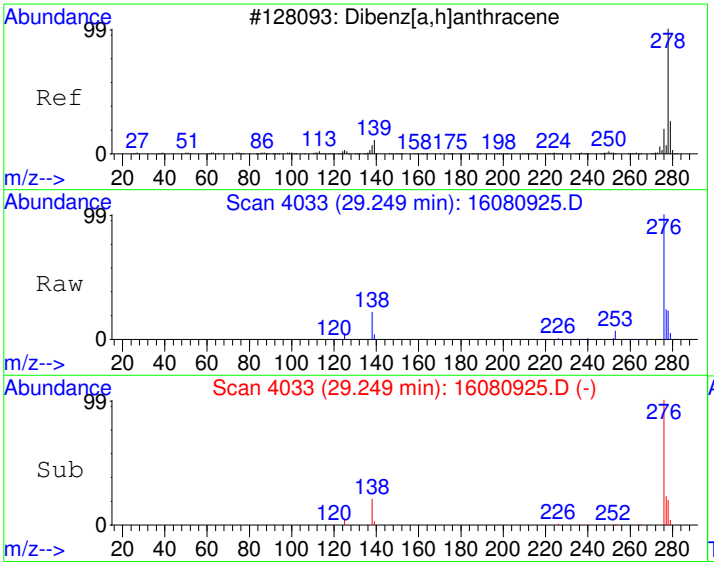


#25
Benzo[a]pyrene
Concen: 290.52 ug/kg
RT: 25.67 min Scan# 3554
Delta R.T. -0.07 min
Lab File: 16080925.D
Acq: 10 Aug 2016 12:28 am

Tgt Ion:252 Resp: 144416

Ion	Ratio	Lower	Upper
252	100		
253	22.2	2.0	42.0
125	11.6	0.0	31.6

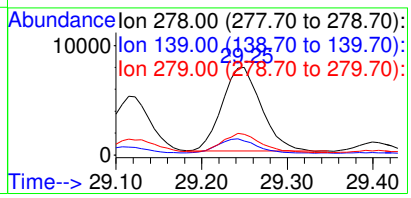


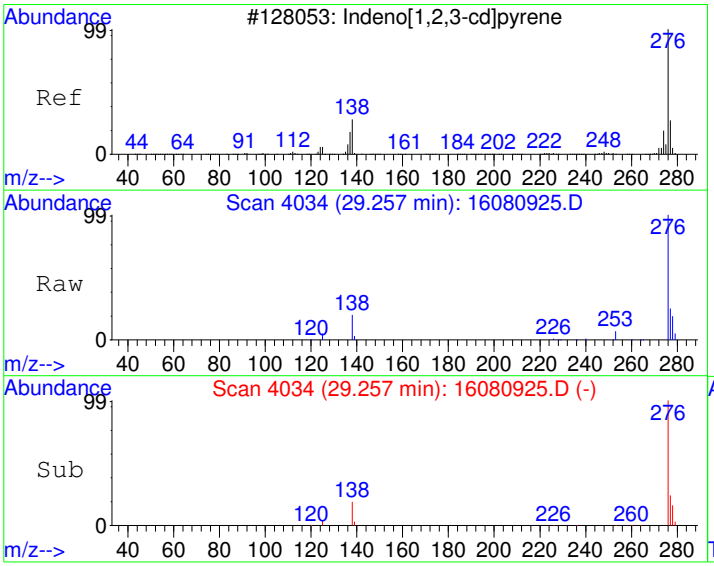


#26
Dibenz[a,h]anthracene
Concen: 50.28 ug/kg
RT: 29.25 min Scan# 4033
Delta R.T. -0.08 min
Lab File: 16080925.D
Acq: 10 Aug 2016 12:28 am

Tgt Ion:278 Resp: 24189

Ion	Ratio	Lower	Upper
278	100		
139	14.0	0.0	33.8
279	21.9	3.9	43.9

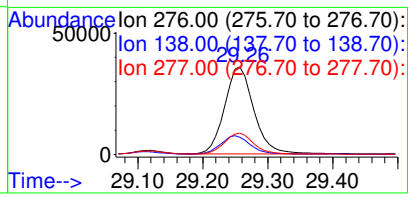


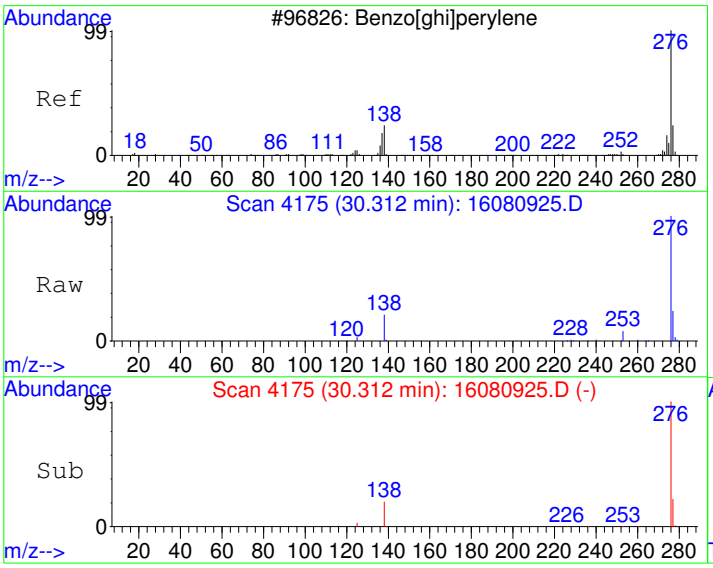


#27
Indeno[1,2,3-cd]pyrene
Concen: 196.80 ug/kg
RT: 29.26 min Scan# 4034
Delta R.T. -0.07 min
Lab File: 16080925.D
Acq: 10 Aug 2016 12:28 am

Tgt Ion:276 Resp: 112341

Ion	Ratio	Lower	Upper
276	100		
138	19.4	4.8	44.8
277	24.2	5.6	45.6

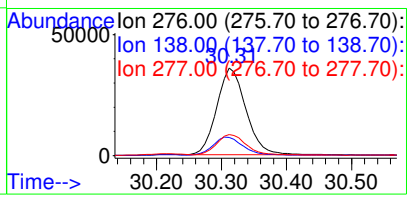




#28
Benzo[g,h,i]perylene
Concen: 231.96 ug/kg
RT: 30.31 min Scan# 4175
Delta R.T. -0.08 min
Lab File: 16080925.D
Acq: 10 Aug 2016 12:28 am

Tgt Ion:276 Resp: 110902

Ion	Ratio	Lower	Upper
276	100		
138	20.5	0.0	38.1
277	23.7	4.1	44.1



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160809\16080926.D Vial: 26
Acq On : 10 Aug 2016 1:08 am Operator: DEW
Sample : 1607317-23A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 10 7:17 2016 Quant Results File: PP160801.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration
DataAcq Meth : PP160801

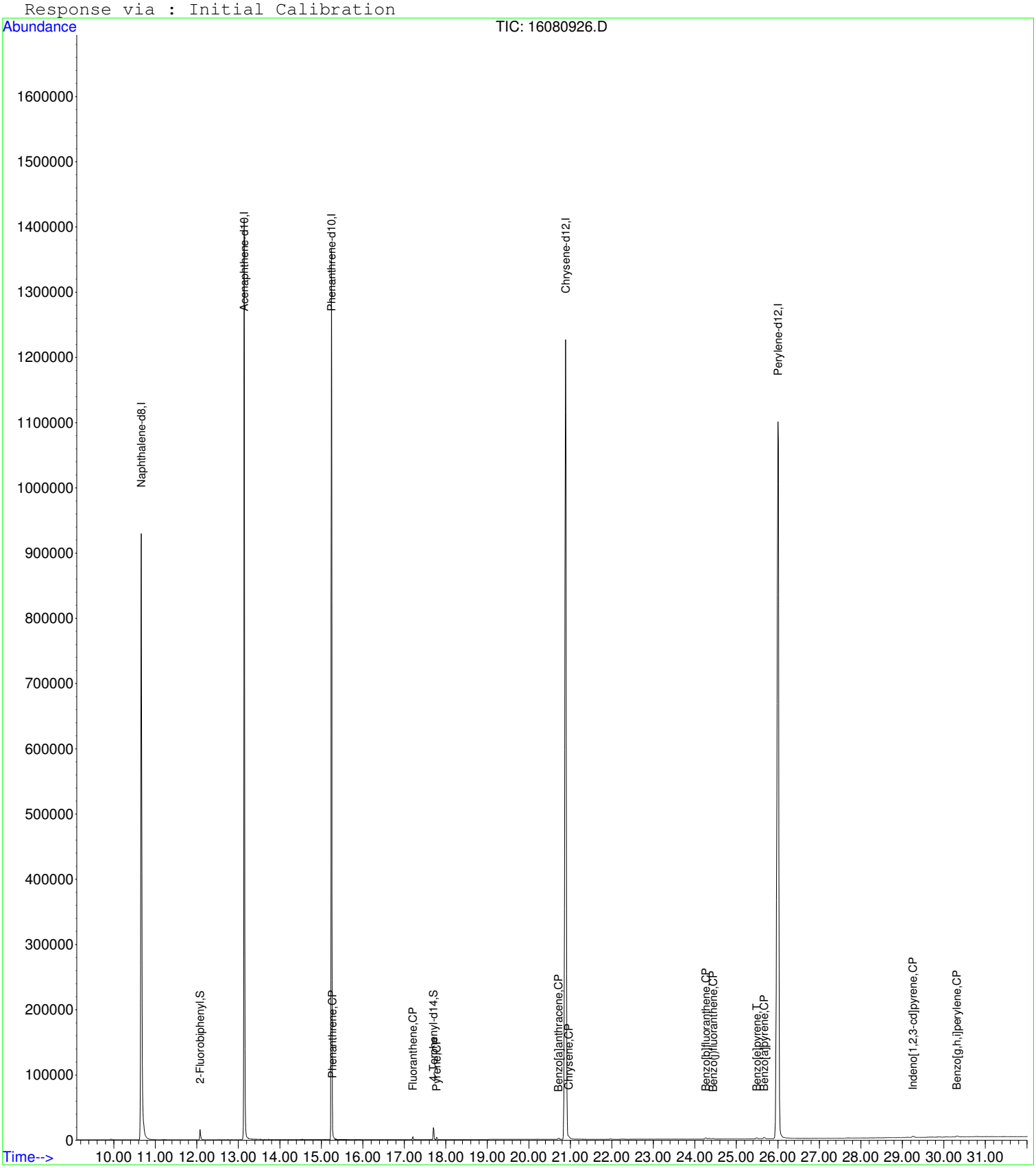
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.66	136	1542108	4000.00	ug/kg	110
5) Acenaphthene-d10	13.14	164	827209	4000.00	ug/kg	138
11) Phenanthrene-d10	15.25	188	1559195	4000.00	ug/kg	98
17) Chrysene-d12	20.89	240	2137604	4000.00	ug/kg	117
20) Perylene-d12	26.00	264	2306491	4000.00	ug/kg	120
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.08	172	19314	66.94	ug/kg	-0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.67%#		
16) 4-Terphenyl-d14	17.70	244	26662	72.46	ug/kg	-0.04
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.81%#		
Target Compounds						Qvalue
12) Phenanthrene	15.28	178	2220	6.01	ug/kg	98
14) Fluoranthene	17.20	202	5400	12.33	ug/kg	97
15) Pyrene	17.78	202	4932	11.10	ug/kg	98
18) Benzo[a]anthracene	20.72	228	3124	6.48	ug/kg	97
19) Chrysene	20.97	228	3733	8.05	ug/kg	99
21) Benzo[b]fluoranthene	24.27	252	4165	7.82	ug/kg	96
23) Benzo(j)fluoranthene	24.44	252	1910	4.07	ug/kg	97
24) Benzo[e]pyrene	25.49	252	3335	6.45	ug/kg	95
25) Benzo[a]pyrene	25.67	252	4267	8.29	ug/kg	96
27) Indeno[1,2,3-cd]pyrene	29.26	276	3267	5.53	ug/kg	91
28) Benzo[g,h,i]perylene	30.32	276	3297	6.66	ug/kg	92

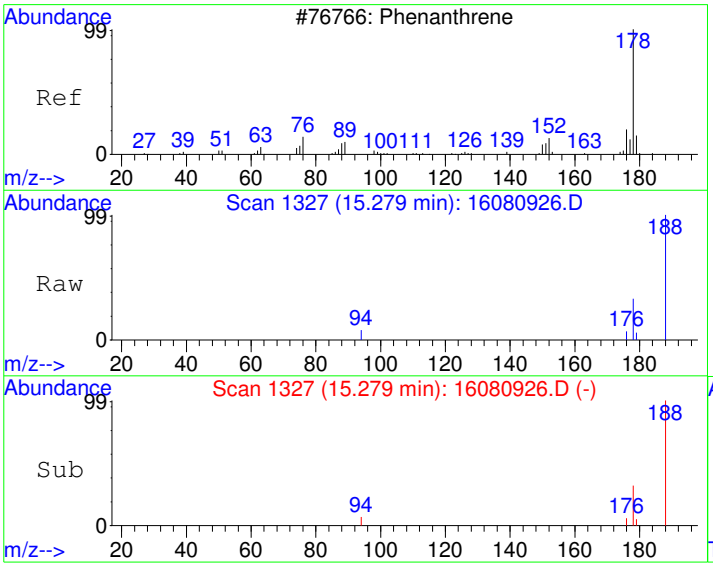
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160809\16080926.D Vial: 26
Acq On : 10 Aug 2016 1:08 am Operator: DEW
Sample : 1607317-23A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 10 7:17 2016 Quant Results File: PP160801.RES

Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration

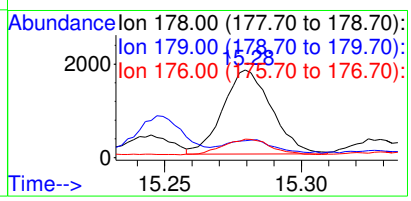


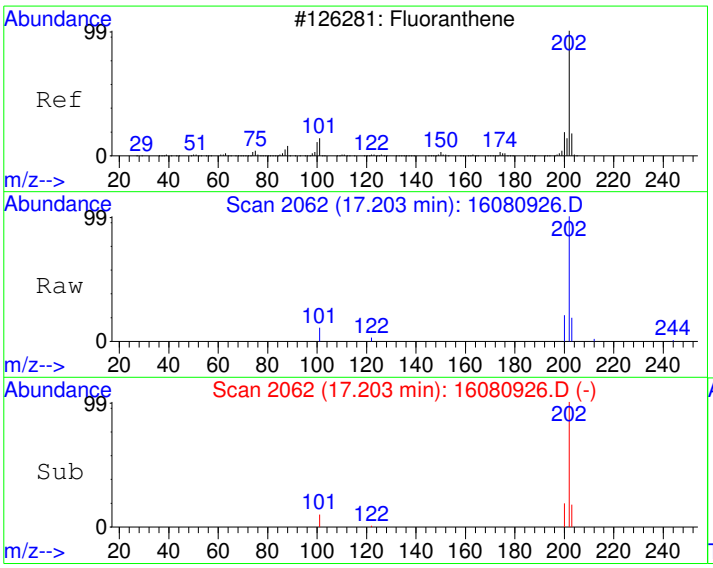


#12
Phenanthrene
Concen: 6.01 ug/kg
RT: 15.28 min Scan# 1327
Delta R.T. -0.02 min
Lab File: 16080926.D
Acq: 10 Aug 2016 1:08 am

Tgt Ion:178 Resp: 2220

Ion	Ratio	Lower	Upper
178	100		
179	14.3	0.0	45.7
176	18.6	0.0	48.7

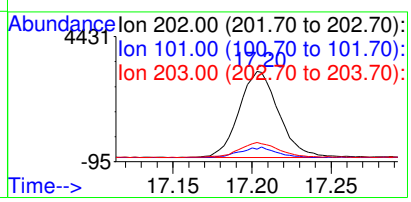


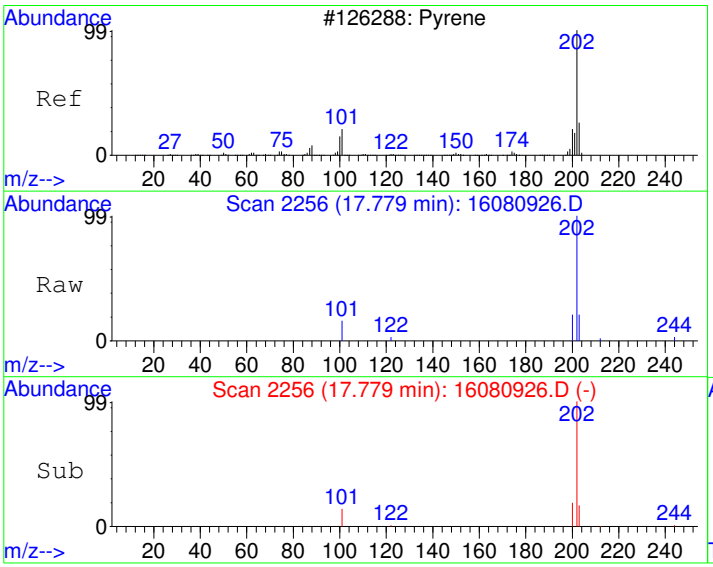


#14
Fluoranthene
Concen: 12.33 ug/kg
RT: 17.20 min Scan# 2062
Delta R.T. -0.03 min
Lab File: 16080926.D
Acq: 10 Aug 2016 1:08 am

Tgt Ion:202 Resp: 5400

Ion	Ratio	Lower	Upper
202	100		
101	9.8	0.0	42.1
203	17.3	0.0	47.9

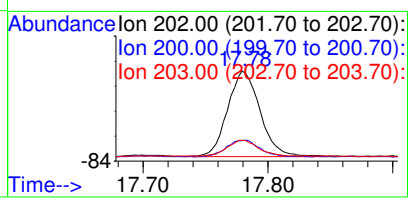


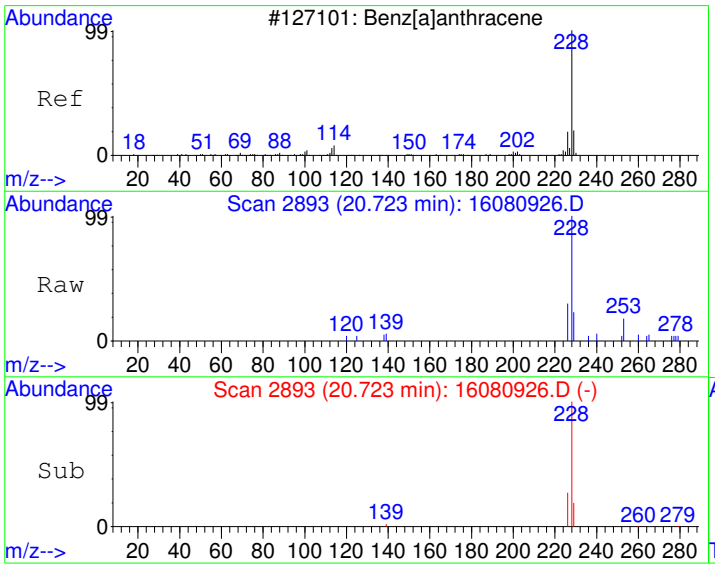


#15
Pyrene
Concen: 11.10 ug/kg
RT: 17.78 min Scan# 2256
Delta R.T. -0.03 min
Lab File: 16080926.D
Acq: 10 Aug 2016 1:08 am

Tgt Ion:202 Resp: 4932

Ion	Ratio	Lower	Upper
202	100		
200	18.8	0.0	49.7
203	18.6	0.0	47.8

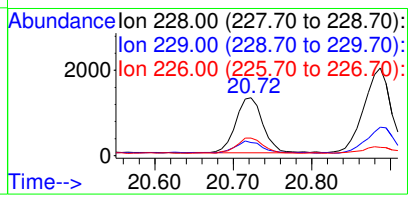


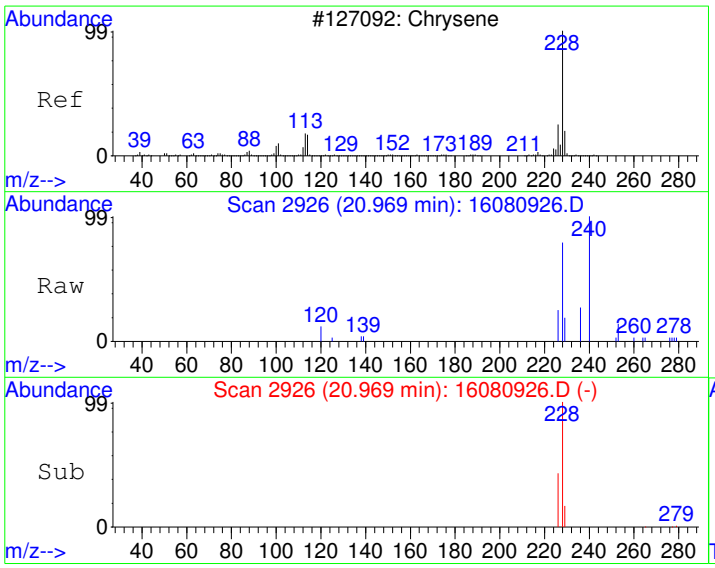


#18
Benzo[a]anthracene
Concen: 6.48 ug/kg
RT: 20.72 min Scan# 2893
Delta R.T. -0.05 min
Lab File: 16080926.D
Acq: 10 Aug 2016 1:08 am

Tgt Ion:228 Resp: 3124

Ion	Ratio	Lower	Upper
228	100		
229	18.4	0.0	49.8
226	27.0	0.0	55.8

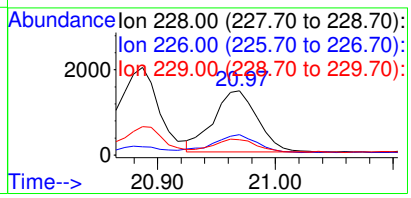


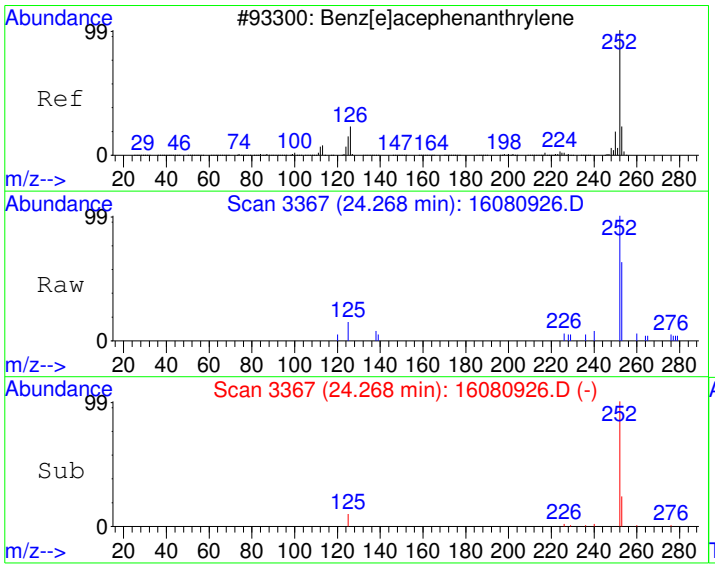


#19
Chrysene
Concen: 8.05 ug/kg
RT: 20.97 min Scan# 2926
Delta R.T. -0.05 min
Lab File: 16080926.D
Acq: 10 Aug 2016 1:08 am

Tgt Ion:228 Resp: 3733

Ion	Ratio	Lower	Upper
228	100		
226	28.5	0.0	58.1
229	20.5	0.0	50.0

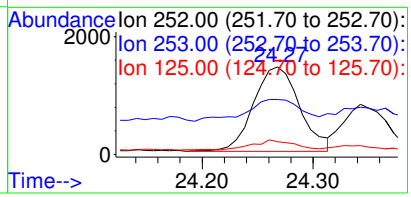


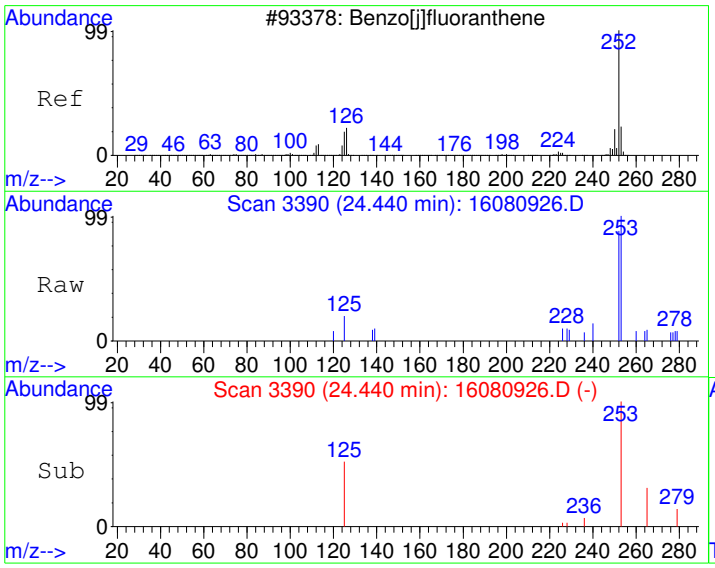


#21
Benzo[b]fluoranthene
Concen: 7.82 ug/kg
RT: 24.27 min Scan# 3367
Delta R.T. -0.06 min
Lab File: 16080926.D
Acq: 10 Aug 2016 1:08 am

Tgt Ion:252 Resp: 4165

Ion	Ratio	Lower	Upper
252	100		
253	24.4	0.0	52.0
125	9.7	0.0	40.6

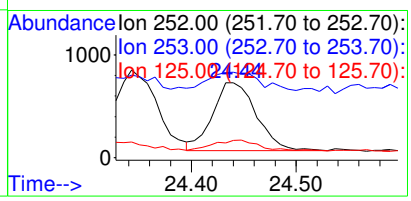


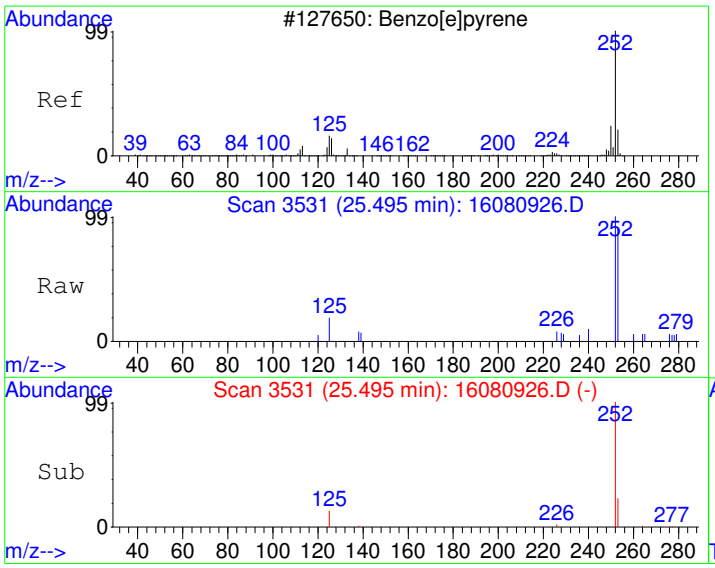


#23
Benzo(j)fluoranthene
Concen: 4.07 ug/kg
RT: 24.44 min Scan# 3390
Delta R.T. -0.07 min
Lab File: 16080926.D
Acq: 10 Aug 2016 1:08 am

Tgt Ion:252 Resp: 1910

Ion	Ratio	Lower	Upper
252	100		
253	23.8	2.2	42.2
125	15.3	0.0	34.4

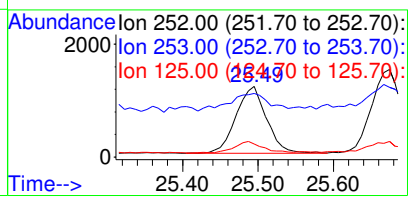


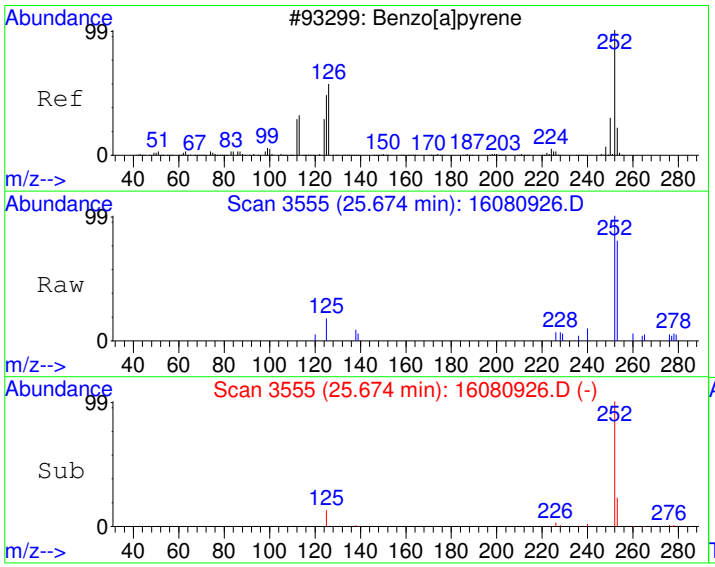


#24
Benzo[e]pyrene
Concen: 6.45 ug/kg
RT: 25.49 min Scan# 3531
Delta R.T. -0.06 min
Lab File: 16080926.D
Acq: 10 Aug 2016 1:08 am

Tgt Ion:252 Resp: 3335

Ion	Ratio	Lower	Upper
252	100		
253	19.6	2.2	42.2
125	13.4	0.0	35.7

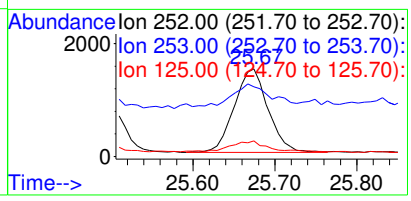


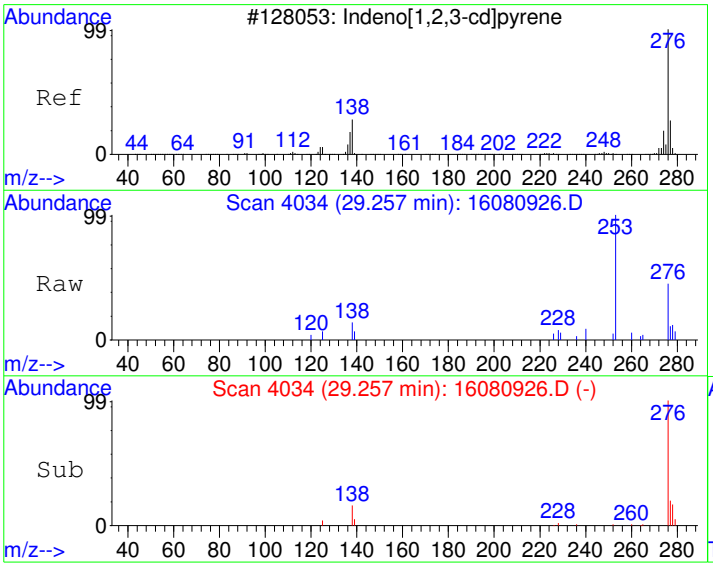


#25
Benzo[a]pyrene
Concen: 8.29 ug/kg
RT: 25.67 min Scan# 3555
Delta R.T. -0.06 min
Lab File: 16080926.D
Acq: 10 Aug 2016 1:08 am

Tgt Ion:252 Resp: 4267

Ion	Ratio	Lower	Upper
252	100		
253	20.3	2.0	42.0
125	13.1	0.0	31.6

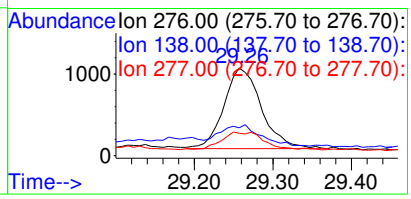


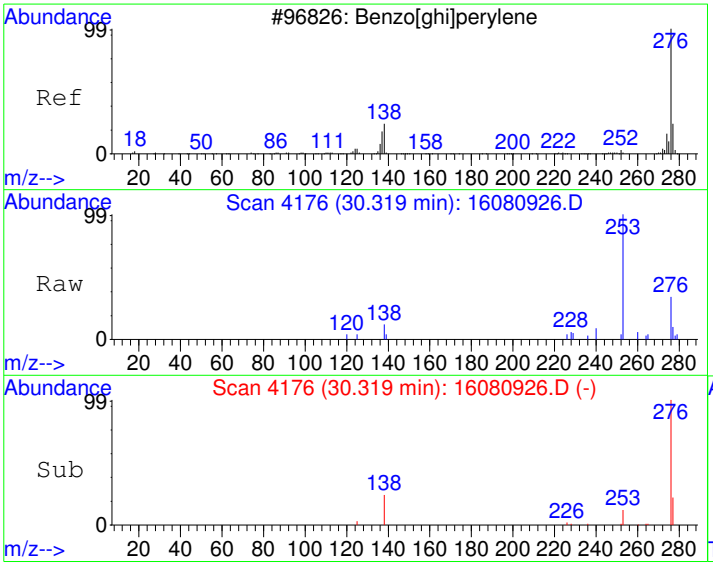


#27
Indeno[1,2,3-cd]pyrene
Concen: 5.53 ug/kg
RT: 29.26 min Scan# 4034
Delta R.T. -0.07 min
Lab File: 16080926.D
Acq: 10 Aug 2016 1:08 am

Tgt Ion:276 Resp: 3267

Ion	Ratio	Lower	Upper
276	100		
138	21.4	4.8	44.8
277	20.3	5.6	45.6

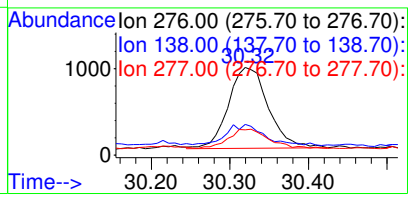




#28
Benzo[g,h,i]perylene
Concen: 6.66 ug/kg
RT: 30.32 min Scan# 4176
Delta R.T. -0.08 min
Lab File: 16080926.D
Acq: 10 Aug 2016 1:08 am

Tgt Ion:276 Resp: 3297

Ion	Ratio	Lower	Upper
276	100		
138	25.8	0.0	38.1
277	23.5	4.1	44.1



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160809\16080927.D Vial: 27
Acq On : 10 Aug 2016 1:49 am Operator: DEW
Sample : 1607317-24A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 10 7:17 2016 Quant Results File: PP160801.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration
DataAcq Meth : PP160801

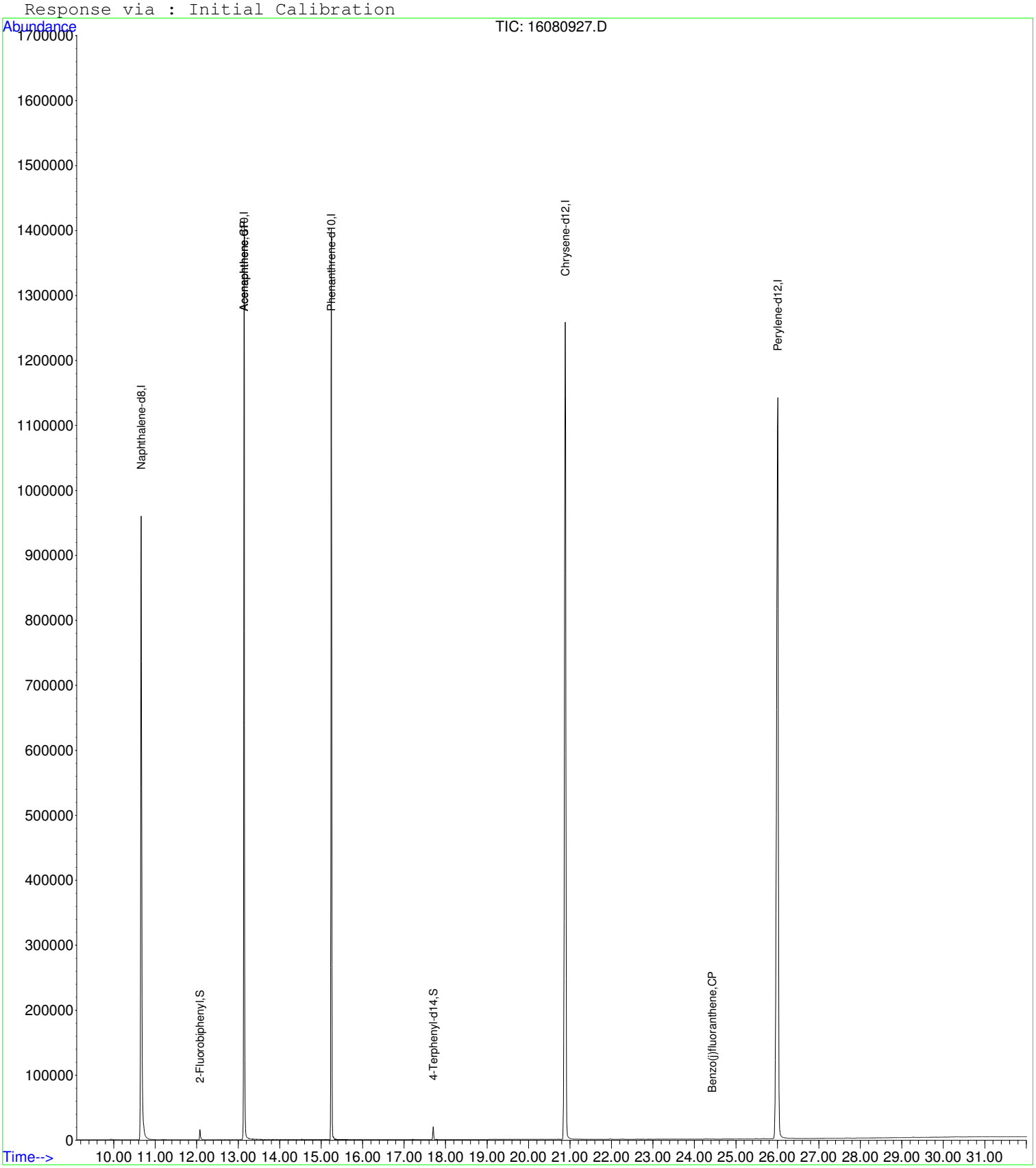
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.66	136	1572210	4000.00	ug/kg	112
5) Acenaphthene-d10	13.14	164	840495	4000.00	ug/kg	140
11) Phenanthrene-d10	15.24	188	1601682	4000.00	ug/kg	101
17) Chrysene-d12	20.89	240	2174938	4000.00	ug/kg	119
20) Perylene-d12	26.01	264	2348765	4000.00	ug/kg	122
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.08	172	19146	65.31	ug/kg	-0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.63%#		
16) 4-Terphenyl-d14	17.70	244	27656	73.17	ug/kg	-0.03
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.83%#		
Target Compounds						Qvalue
9) Acenaphthene	13.14	154	2744	12.73	ug/kg#	11
23) Benzo(j)fluoranthene	24.44	252	531	1.11	ug/kg#	70

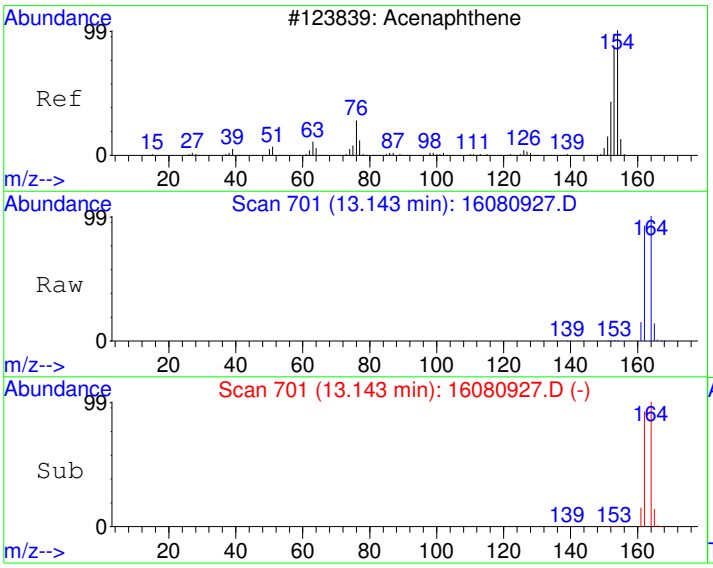
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160809\16080927.D Vial: 27
Acq On : 10 Aug 2016 1:49 am Operator: DEW
Sample : 1607317-24A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 10 7:17 2016 Quant Results File: PP160801.RES

Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration

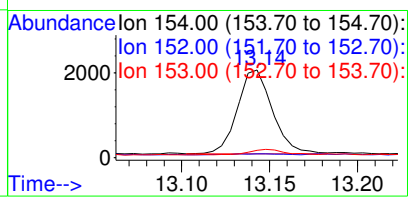


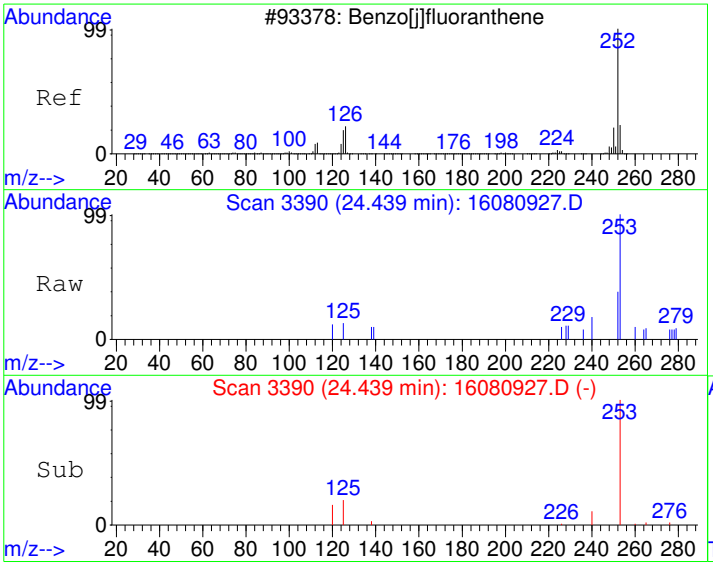


#9
Acenaphthene
Concen: 12.73 ug/kg
RT: 13.14 min Scan# 701
Delta R.T. -0.07 min
Lab File: 16080927.D
Acq: 10 Aug 2016 1:49 am

Tgt Ion:154 Resp: 2744

Ion	Ratio	Lower	Upper
154	100		
152	0.9	19.1	79.1#
153	5.5	76.2	136.2#

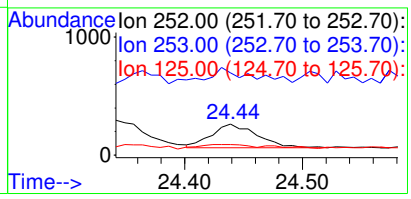




#23
Benzo(j)fluoranthene
Concen: 1.11 ug/kg
RT: 24.44 min Scan# 3390
Delta R.T. -0.07 min
Lab File: 16080927.D
Acq: 10 Aug 2016 1:49 am

Tgt Ion:252 Resp: 531

Ion	Ratio	Lower	Upper
252	100		
253	43.0	2.2	42.2#
125	10.5	0.0	34.4



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160809\16080928.D Vial: 28
Acq On : 10 Aug 2016 2:29 am Operator: DEW
Sample : 1607317-25A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 10 7:18 2016 Quant Results File: PP160801.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration
DataAcq Meth : PP160801

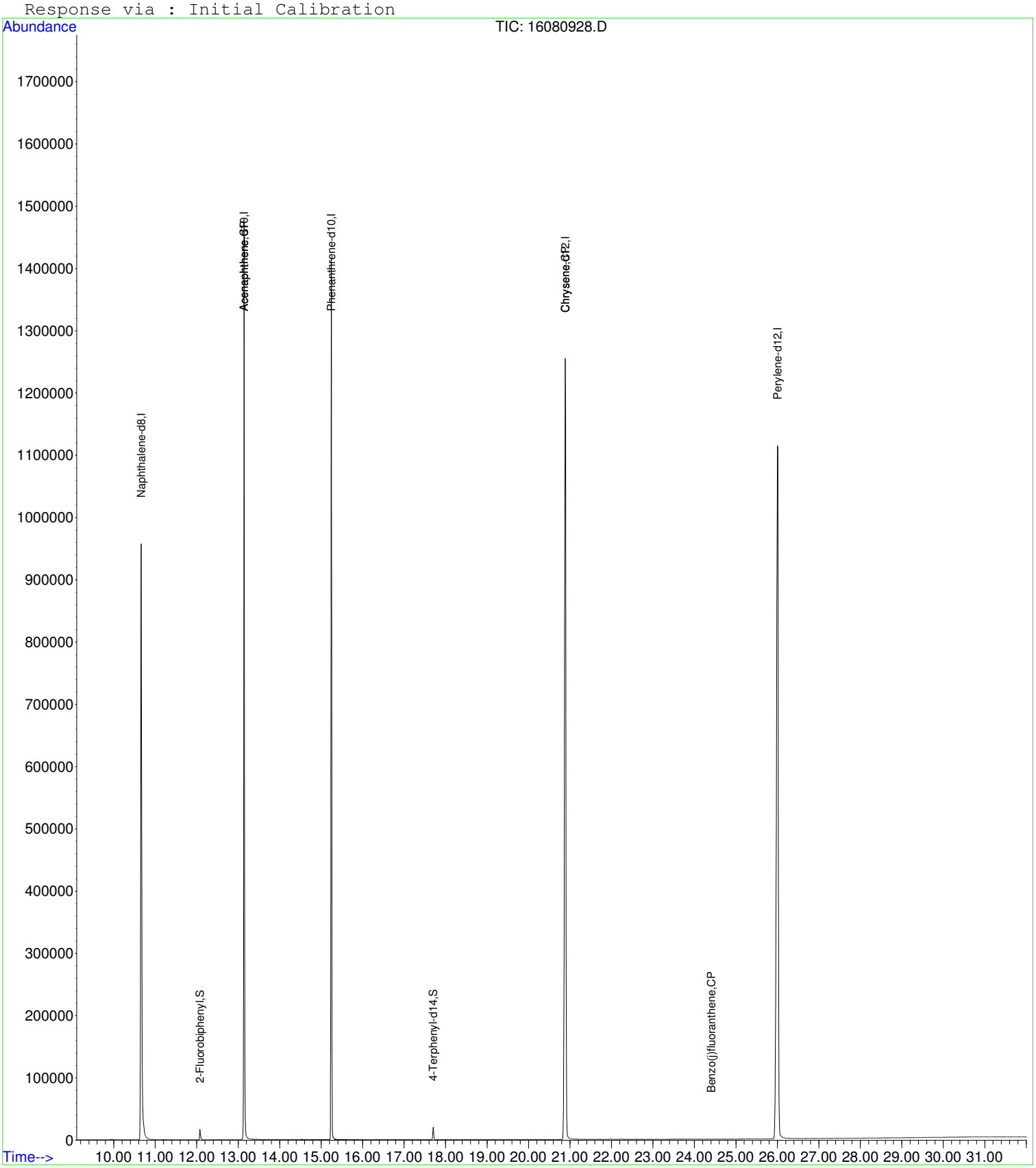
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.66	136	1578806	4000.00	ug/kg	113
5) Acenaphthene-d10	13.14	164	852234	4000.00	ug/kg	142
11) Phenanthrene-d10	15.24	188	1607125	4000.00	ug/kg	101
17) Chrysene-d12	20.89	240	2183514	4000.00	ug/kg	119
20) Perylene-d12	26.01	264	2350677	4000.00	ug/kg	122
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.08	172	20794	69.95	ug/kg	-0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.75%#		
16) 4-Terphenyl-d14	17.70	244	28510	75.17	ug/kg	-0.04
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.88%#		
Target Compounds						Qvalue
9) Acenaphthene	13.14	154	2963	~~13.56~~	~~ug/kg#~~	~~11~~
19) Chrysene	20.89	228	4617	~~9.75~~	~~ug/kg~~	~~70~~
23) Benzo(j)fluoranthene	24.42	252	14	0.03	ug/kg#	58

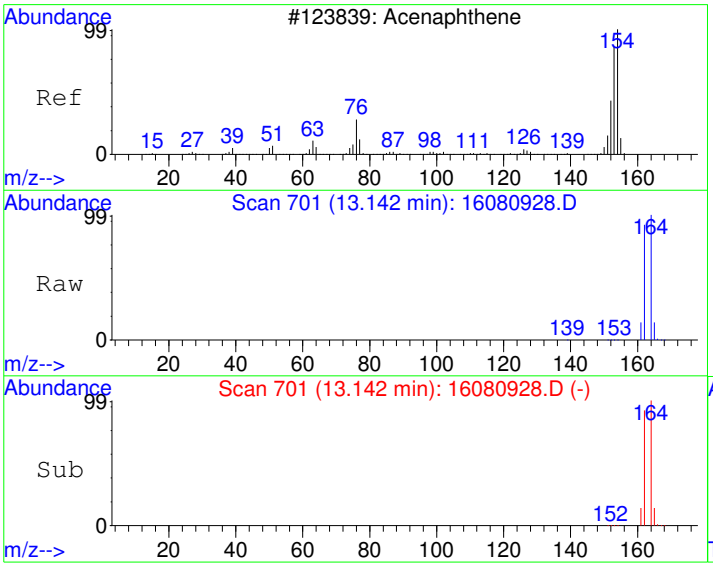
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160809\16080928.D Vial: 28
Acq On : 10 Aug 2016 2:29 am Operator: DEW
Sample : 1607317-25A Inst : GC/MS #6
Misc : SAMP Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 10 7:18 2016 Quant Results File: PP160801.RES

Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration

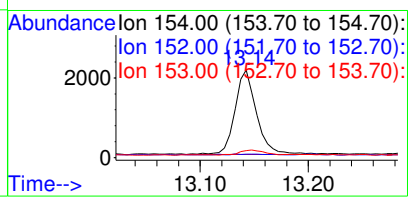


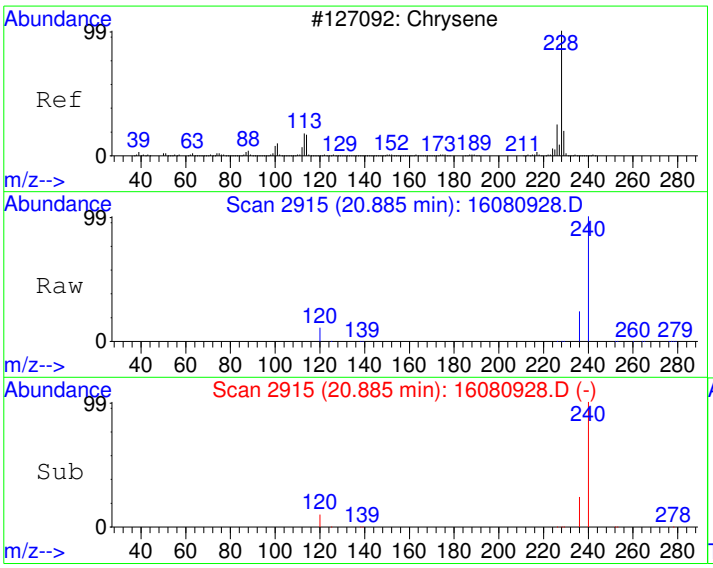


#9
Acenaphthene
Concen: 13.56 ug/kg
RT: 13.14 min Scan# 701
Delta R.T. -0.07 min
Lab File: 16080928.D
Acq: 10 Aug 2016 2:29 am

Tgt Ion:154 Resp: 2963

Ion	Ratio	Lower	Upper
154	100		
152	0.9	19.1	79.1#
153	4.9	76.2	136.2#

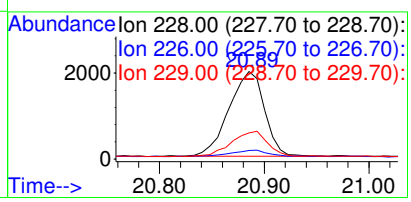


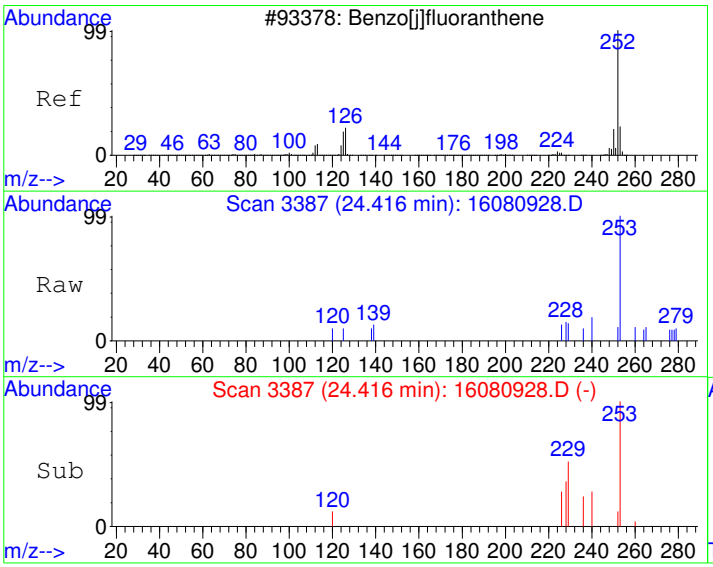


#19
Chrysene
Concen: 9.75 ug/kg
RT: 20.89 min Scan# 2915
Delta R.T. -0.14 min
Lab File: 16080928.D
Acq: 10 Aug 2016 2:29 am

Tgt Ion:228 Resp: 4617

Ion	Ratio	Lower	Upper
228	100		
226	7.3	0.0	58.1
229	28.0	0.0	50.0

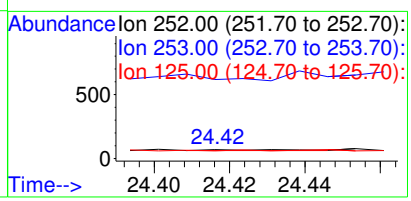




#23
Benzo(j)fluoranthene
Concen: 0.03 ug/kg
RT: 24.42 min Scan# 3387
Delta R.T. -0.09 min
Lab File: 16080928.D
Acq: 10 Aug 2016 2:29 am

Tgt Ion:252 Resp: 14

Ion	Ratio	Lower	Upper
252	100		
253	0.0	2.2	42.2#
125	0.0	0.0	34.4



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160809\16080929.D Vial: 29
Acq On : 10 Aug 2016 3:09 am Operator: DEW
Sample : 1607317-09AMS Inst : GC/MS #6
Misc : MS Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 10 7:03 2016 Quant Results File: PP160801.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration
DataAcq Meth : PP160801

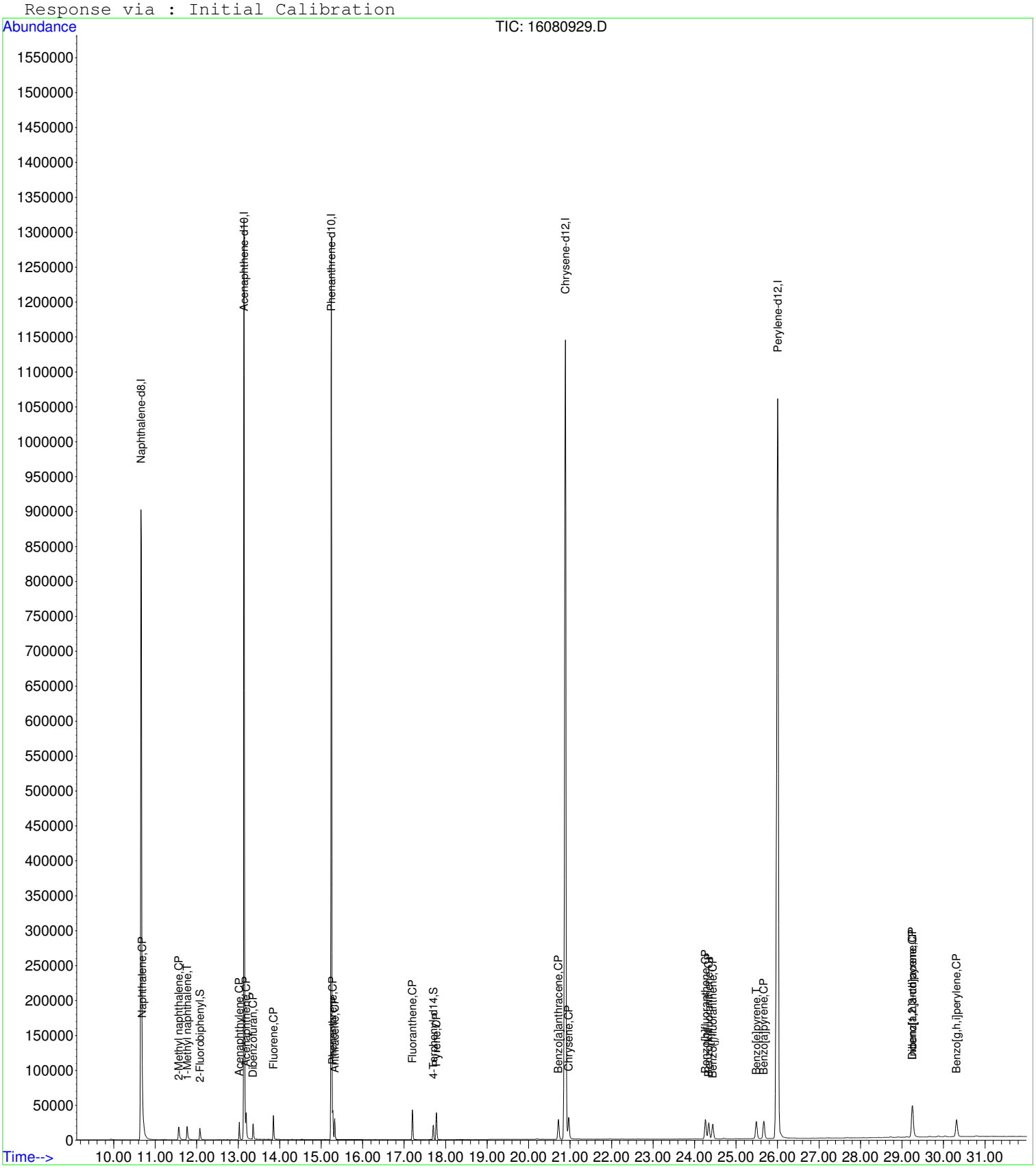
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.66	136	1460353	4000.00	ug/kg	104
5) Acenaphthene-d10	13.14	164	780782	4000.00	ug/kg	130
11) Phenanthrene-d10	15.24	188	1480353	4000.00	ug/kg	93
17) Chrysene-d12	20.89	240	2007160	4000.00	ug/kg	109
20) Perylene-d12	26.00	264	2164235	4000.00	ug/kg	112
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.08	172	20750	76.19	ug/kg	-0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.90%#		
16) 4-Terphenyl-d14	17.70	244	29815	85.35	ug/kg	-0.03
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.13%#		
Target Compounds						Qvalue
2) Naphthalene	10.69	128	25177	75.77	ug/kg	100
3) 2-Methyl naphthalene	11.57	142	17835	82.80	ug/kg	99
4) 1-Methyl naphthalene	11.77	142	15943	83.56	ug/kg	96
6) Dibenzofuran	13.36	168	24582	77.80	ug/kg	98
8) Acenaphthylene	13.03	152	25878	74.84	ug/kg	99
9) Acenaphthene	13.19	154	16123	80.51	ug/kg	99
10) Fluorene	13.85	166	20091	79.82	ug/kg	100
12) Phenanthrene	15.28	178	32424	92.38	ug/kg	98
13) Anthracene	15.33	178	28619	77.50	ug/kg	99
14) Fluoranthene	17.20	202	46362	111.47	ug/kg	98
15) Pyrene	17.78	202	46089	109.28	ug/kg	99
18) Benzo[a]anthracene	20.72	228	44890	99.23	ug/kg	99
19) Chrysene	20.96	228	45576	104.72	ug/kg	99
21) Benzo[b]fluoranthene	24.26	252	56051	112.19	ug/kg	99
22) Benzo[k]fluoranthene	24.34	252	43495	94.89	ug/kg	99
23) Benzo(j)fluoranthene	24.43	252	42936	97.47	ug/kg	99
24) Benzo[e]pyrene	25.49	252	51445	106.10	ug/kg	99
25) Benzo[a]pyrene	25.67	252	51885	107.48	ug/kg	100
26) Dibenz[a,h]anthracene	29.24	278	42430	90.83	ug/kg	98
27) Indeno[1,2,3-cd]pyrene	29.25	276	59156	106.71	ug/kg	97
28) Benzo[g,h,i]perylene	30.31	276	51231	110.34	ug/kg	96

(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160809\16080929.D Vial: 29
Acq On : 10 Aug 2016 3:09 am Operator: DEW
Sample : 1607317-09AMS Inst : GC/MS #6
Misc : MS Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 10 7:03 2016 Quant Results File: PP160801.RES

Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160809\16080930.D Vial: 30
Acq On : 10 Aug 2016 3:50 am Operator: DEW
Sample : 1607317-09AMSD Inst : GC/MS #6
Misc : MSD Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 10 7:03 2016 Quant Results File: PP160801.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration
DataAcq Meth : PP160801

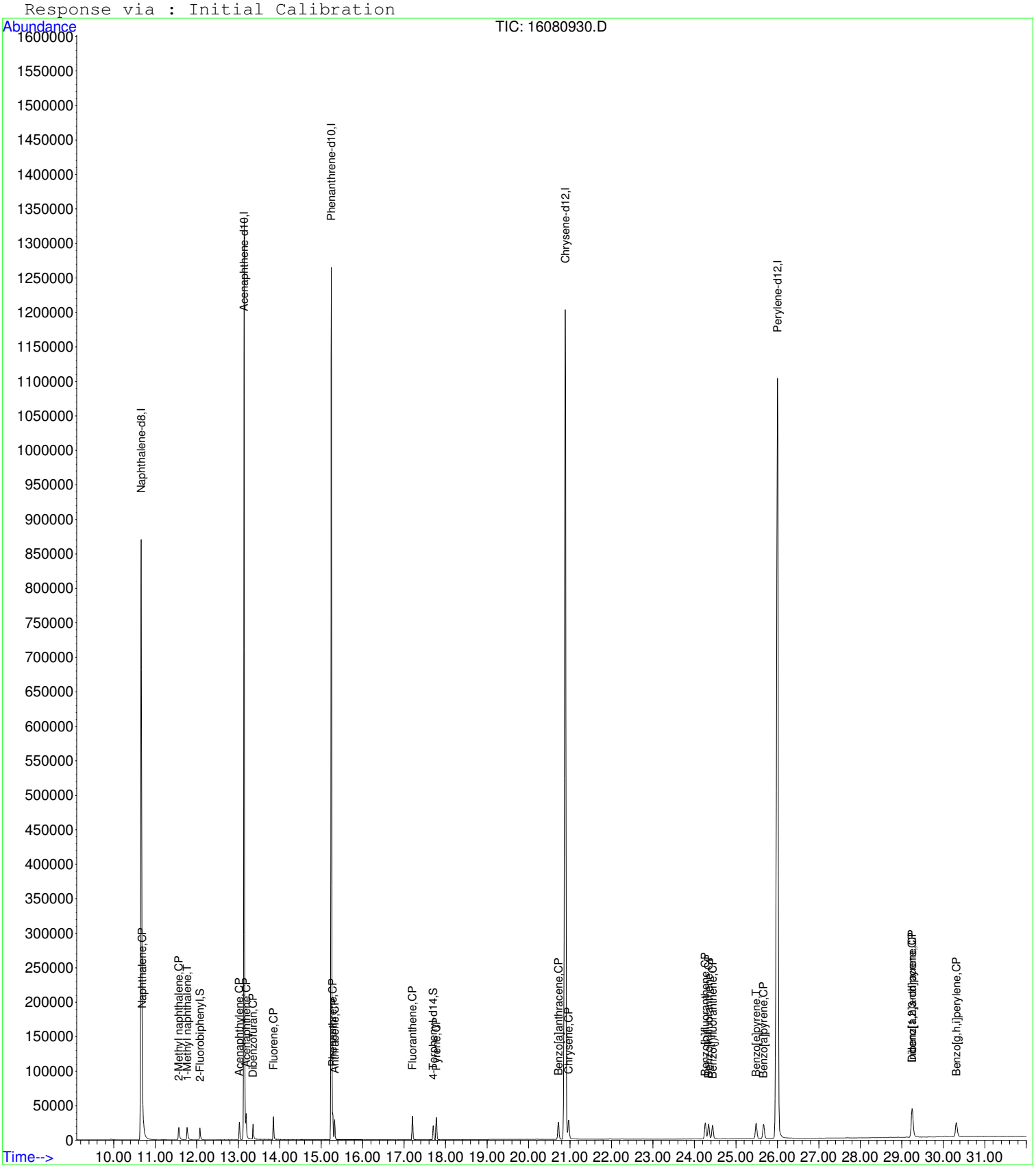
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.66	136	1444217	4000.00	ug/kg	103
5) Acenaphthene-d10	13.14	164	781223	4000.00	ug/kg	130
11) Phenanthrene-d10	15.25	188	1480744	4000.00	ug/kg	93
17) Chrysene-d12	20.89	240	2056103	4000.00	ug/kg	112
20) Perylene-d12	26.00	264	2201771	4000.00	ug/kg	114
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.08	172	20612	75.64	ug/kg	-0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.89%#		
16) 4-Terphenyl-d14	17.70	244	29334	83.95	ug/kg	-0.04
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.10%#		
Target Compounds						Qvalue
2) Naphthalene	10.69	128	24141	73.47	ug/kg	100
3) 2-Methyl naphthalene	11.57	142	17243	80.95	ug/kg	97
4) 1-Methyl naphthalene	11.77	142	15427	81.76	ug/kg	98
6) Dibenzofuran	13.36	168	24185	76.50	ug/kg	99
8) Acenaphthylene	13.03	152	25695	74.27	ug/kg	100
9) Acenaphthene	13.19	154	15679	78.25	ug/kg	98
10) Fluorene	13.85	166	19689	78.17	ug/kg	99
12) Phenanthrene	15.28	178	29761	84.77	ug/kg	98
13) Anthracene	15.33	178	27405	74.19	ug/kg	98
14) Fluoranthene	17.20	202	38380	92.25	ug/kg	98
15) Pyrene	17.78	202	38659	91.64	ug/kg	99
18) Benzo[a]anthracene	20.72	228	38816	83.76	ug/kg	100
19) Chrysene	20.97	228	38248	85.79	ug/kg	99
21) Benzo[b]fluoranthene	24.26	252	46291	91.07	ug/kg	99
22) Benzo[k]fluoranthene	24.34	252	39713	85.17	ug/kg	99
23) Benzo(j)fluoranthene	24.44	252	38718	86.40	ug/kg	99
24) Benzo[e]pyrene	25.49	252	44413	90.04	ug/kg	98
25) Benzo[a]pyrene	25.67	252	42744	87.03	ug/kg	99
26) Dibenz[a,h]anthracene	29.25	278	40855	85.96	ug/kg	98
27) Indeno[1,2,3-cd]pyrene	29.26	276	53044	94.05	ug/kg	98
28) Benzo[g,h,i]perylene	30.32	276	45379	96.07	ug/kg	97

(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160809\16080930.D Vial: 30
Acq On : 10 Aug 2016 3:50 am Operator: DEW
Sample : 1607317-09AMSD Inst : GC/MS #6
Misc : MSD Multiplr: 10.00
MS Integration Params: RTEINT.P
Quant Time: Aug 10 7:03 2016 Quant Results File: PP160801.RES

Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160809\16080931.D Vial: 31
Acq On : 10 Aug 2016 4:30 am Operator: DEW
Sample : CCV1-160809 Inst : GC/MS #6
Misc : CCV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 10 7:03 2016 Quant Results File: PP160801.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration
DataAcq Meth : PP160801

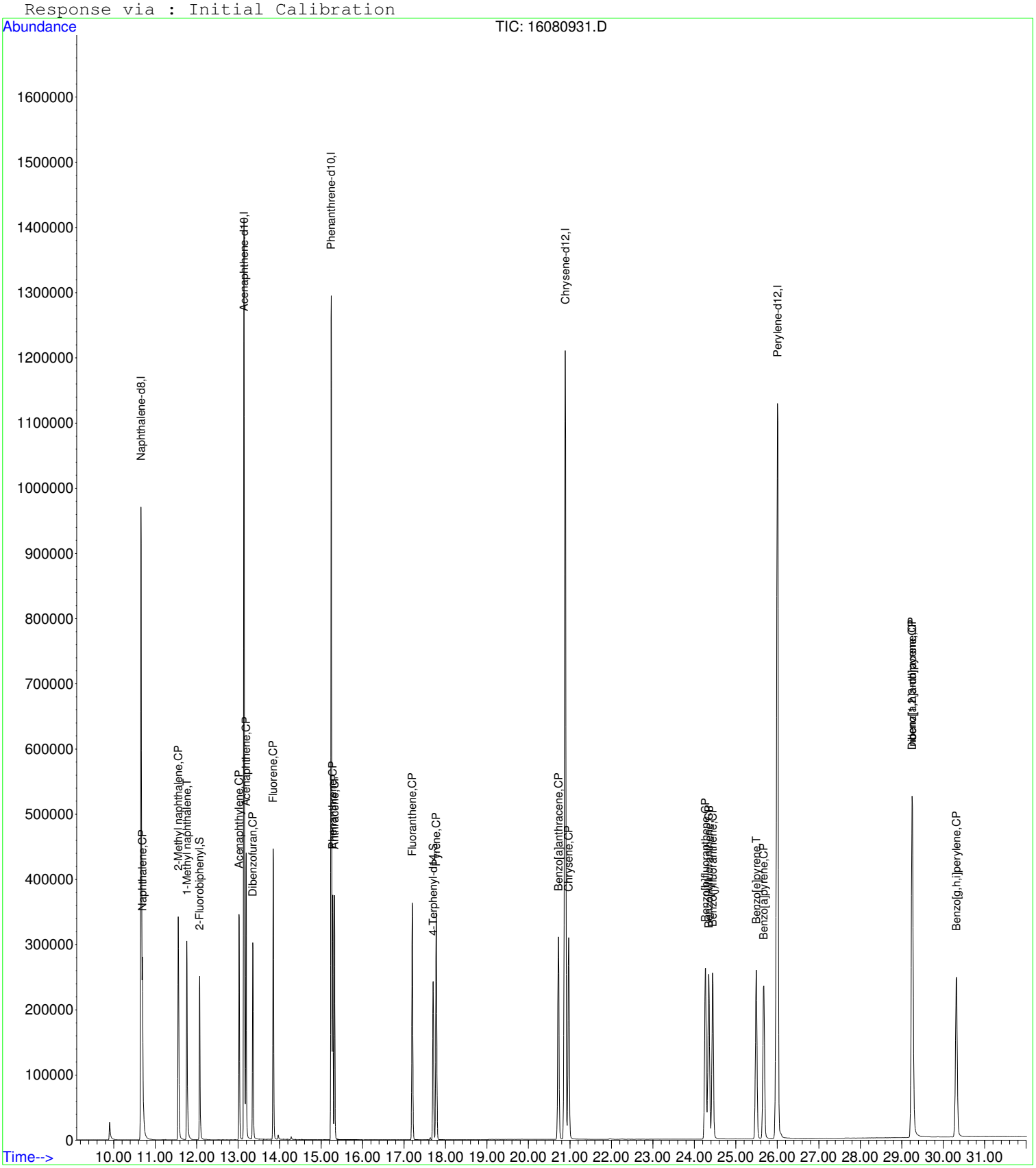
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.66	136	1457154	4000.00	ug/kg	104
5) Acenaphthene-d10	13.14	164	816926	4000.00	ug/kg	136
11) Phenanthrene-d10	15.24	188	1517181	4000.00	ug/kg	95
17) Chrysene-d12	20.89	240	2134850	4000.00	ug/kg	116
20) Perylene-d12	26.00	264	2270272	4000.00	ug/kg	118
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.07	172	253287	888.87	ug/kg	-0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery = 22.22%#			
16) 4-Terphenyl-d14	17.70	244	344069	960.99	ug/kg	-0.04
Spiked Amount 4000.000	Range 40 - 140		Recovery = 24.02%#			
Target Compounds						Qvalue
2) Naphthalene	10.69	128	308644	930.95	ug/kg	100
3) 2-Methyl naphthalene	11.56	142	225226	1047.91	ug/kg	96
4) 1-Methyl naphthalene	11.76	142	202816	1065.34	ug/kg	96
6) Dibenzofuran	13.36	168	300556	909.12	ug/kg	99
8) Acenaphthylene	13.02	152	345148	954.06	ug/kg	100
9) Acenaphthene	13.19	154	199550	952.42	ug/kg	98
10) Fluorene	13.84	166	249559	947.55	ug/kg	99
12) Phenanthrene	15.28	178	337090	937.15	ug/kg	99
13) Anthracene	15.32	178	347853	919.06	ug/kg	100
14) Fluoranthene	17.20	202	397188	931.77	ug/kg	100
15) Pyrene	17.78	202	406677	940.88	ug/kg	100
18) Benzo[a]anthracene	20.72	228	469144	974.98	ug/kg	100
19) Chrysene	20.97	228	446380	964.28	ug/kg	100
21) Benzo[b]fluoranthene	24.27	252	531747	1014.58	ug/kg	99
22) Benzo[k]fluoranthene	24.35	252	490459	1020.06	ug/kg	99
23) Benzo(j)fluoranthene	24.44	252	470986	1019.30	ug/kg	99
24) Benzo[e]pyrene	25.49	252	503652	990.25	ug/kg	98
25) Benzo[a]pyrene	25.67	252	498501	984.41	ug/kg	99
26) Dibenz[a,h]anthracene	29.25	278	513380	1047.62	ug/kg	98
27) Indeno[1,2,3-cd]pyrene	29.26	276	599488	1030.90	ug/kg	100
28) Benzo[g,h,i]perylene	30.32	276	503388	1033.53	ug/kg	98

(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160809\16080931.D Vial: 31
Acq On : 10 Aug 2016 4:30 am Operator: DEW
Sample : CCV1-160809 Inst : GC/MS #6
Misc : CCV Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 10 7:03 2016 Quant Results File: PP160801.RES

Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration



GCMS6
Calibration Curve
For

DHL Work Order
1607317

CAL ID: 680

Method 8270 PAH Calibration Curve Sheet

Instrument ID: GCMS #6 **Calibration File Name:** PAH160801.CAL

Target Concentration	Solvent Amount mL	Standard Preparation Stocks and Surrogate (µL/mL)	Final Volume mL
5 ppb	0.999	0.001 mL of 5000 ppb	1
10 ppb	0.998	0.002 mL of 5000 ppb	1
50 ppb	0.990	0.01 mL of 5000 ppb	1
100 ppb	0.980	0.02 mL of 5000 ppb	1
500 ppb	0.900	0.10 mL of 5000 ppb	1
1000 ppb	0.800	0.20 mL of 5000 ppb	1
2000 ppb	0.600	0.40 mL of 5000 ppb	1
5000 ppb	----	PAHCAL160801	10
SSCV 2500 ppb	0.500	0.50 mL of PAHSSCV160725	1
SSCV 2500 ppb	----	PAHSSCV160801-1	1

Standards Used for the Calibration Curve

Primary Stock STDs	DHL Standard ID	Second Source (SS) Stock STDs	DHL Standard ID
5 PPM (5000 PPB) PAH CAL STD	**PAHCAL160801**	5PPM (5000PPB) PAH SSCV STD	**PAHSSCV160725**
		2.5PPM (2500PPB) PAH SSCV STD	**PAHSSCV160801-1**

Review Item	Acceptance Criteria	Yes	No	N/A	2nd Level Review
1. Are all standards within expiration dates?	Primary Stocks = 1 year Intermediate Standards = 6 months	X			X
2. Are all manual integrations listed on MI tracking form? **(DoD Projects only)**	Manual Integration Tracking Form			X	
3. Does the tune and resolution check meet criteria?	Benzo(b) / Benzo(k)phenanthrene Valley > 50% See Tune Eval Report	X			
4. Does the ICAL curve meet criteria? Use average CF only if %RSD < 15%	%RSD < 15% COD ≥ 0.990	X			
5. Has the low point been reprocessed under the new ICAL curve and meets criteria?	70-130% recovery	X			
6. Has the SSCV been analyzed and meets criteria?	80-120% recovery	X			

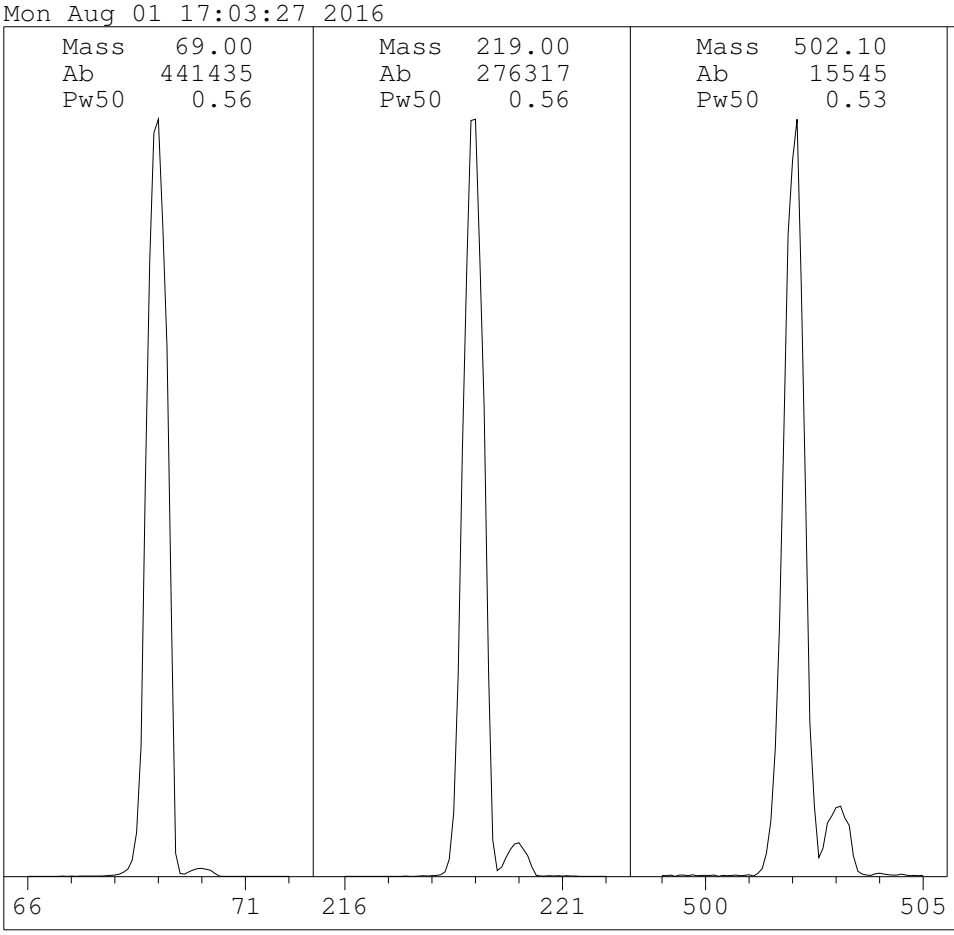
Analyst: Karyn Lane Date: 08/2/2016

Second-Level Review: Date: 08/02/2016

HP5973

Instrument: GC/MS #6

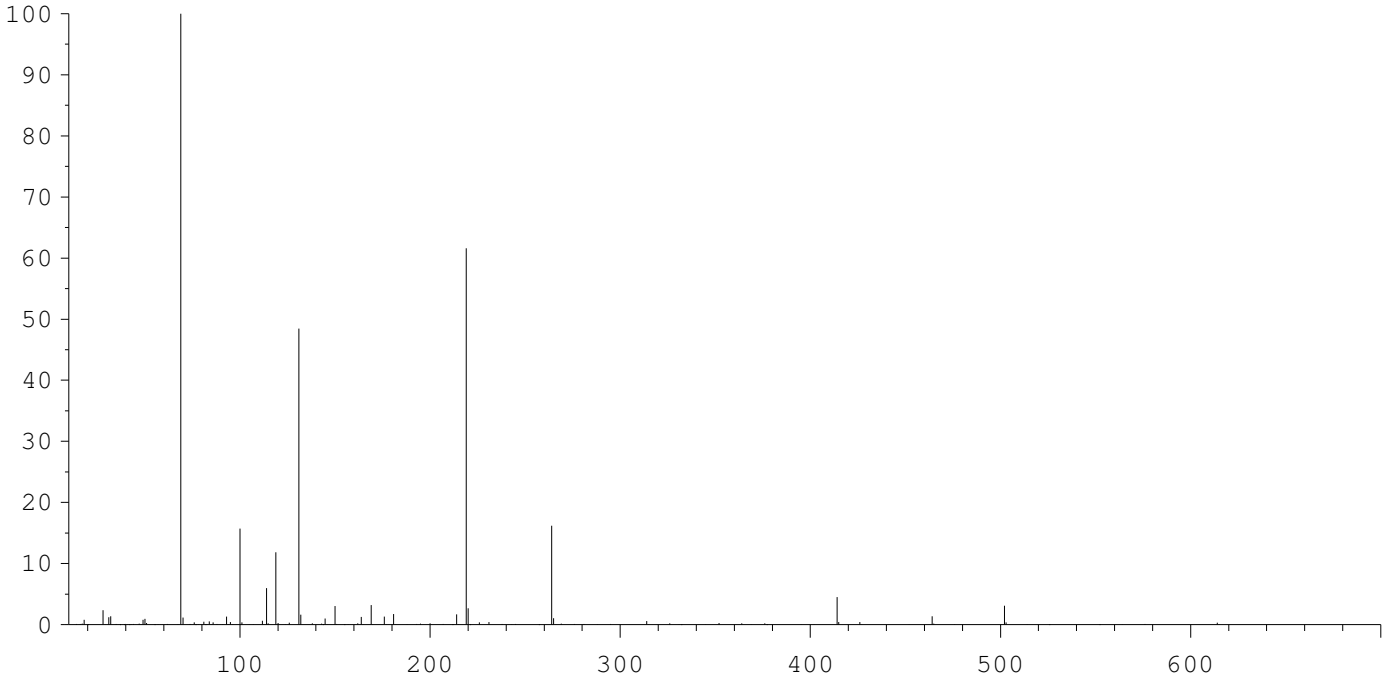
Mon Aug 01 17:03:27 2016 C:\HPCHEM\1\5973\ATUNE.U



Ion Pol	POS	MassGain	7
		MassOffs	-14
Emission	34.6	AmuGain	2205
EleEnergy	69.9	AmuOffs	127
Filament	2	Wid219	0.011
		DC Pol	POS
Repeller	19.90		
IonFocus	79.7	HED	ON
EntLens	11.5	EMVolts	1635
EntOffs	17.32		
		Samples	8
PFTBA	OPEN	Averages	3
		StepSize	0.10
Zones:			
MS Source	230	Foreline	73
MS Quad	150		

Scan: 10.00 - 700.00 Samples: 8 Thresh: 100

130 peaks Base: 69.00 Abundance: 387008



Mass	Abund	Rel Abund	Iso Mass	Iso Abund	Iso Ratio
69.00	387008	100.00	70.00	4591	1.19
219.00	238464	61.62	220.00	10470	4.39
502.00	12051	3.11	503.00	1348	11.19

TARGET MASS:	50	69	131	219	414	502
TARGET ABUND(%):	1.0	100.0	55.0	45.0	3.5	2.5
ACTUAL TUNE ABUND(%):	0.9	100.0	48.4	61.6	4.5	3.1

Response Factor Report GC/MS #6

Method Path : F:\IC\GCMS#6\
Method File : PP160801.M
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response Via : Initial Calibration

Calibration Files
1 =16080115.D 2 =16080116.D 3 =16080117.D 4 =16080118.D 5 =16080119.D 6 =16080120.D 7 =16080121.D
8 =16080122.D

		Compound	1	2	3	4	5	6	7	8	Avg	%RSD	Fit	RSD/CF	Constant	Linear	Quad
1)	I	Naphthalene-d8	----------ISTD----------														
2)	CP	Naphthalene	1.062	0.956	0.902	0.953	0.875	0.840	0.843	0.850	0.910	8.46	A	0.0846	0.0000	0.9101	0.0000
3)	CP	2-Methyl napht...	0.657	0.607	0.603	0.634	0.582	0.556	0.544	0.538	0.590	7.26	A	0.0726	0.0000	0.5900	0.0000
4)	T	1-Methyl napht...	0.569	0.527	0.538	0.561	0.520	0.499	0.489	0.478	0.523	6.27	A	0.0627	0.0000	0.5226	0.0000
5)	I	Acenaphthene-d10	----------ISTD----------														
6)	CP	Dibenzofuran	1.855	1.646	1.595	1.674	1.561	1.494	1.545	1.580	1.619	6.85#	A	0.0685	0.0000	1.6187	0.0000
7)	S	2-Fluorobiphenyl	1.505	1.419	1.418	1.499	1.403	1.331	1.331	1.257	1.395	6.13	A	0.0613	0.0000	1.3953	0.0000
8)	CP	Acenaphthylene	1.909	1.776	1.725	1.858	1.776	1.710	1.719	1.699	1.771	4.29	A	0.0429	0.0000	1.7714	0.0000
9)	CP	Acenaphthene	1.094	1.023	0.977	1.046	1.046	1.000	1.006	1.015	1.026	3.51	A	0.0351	0.0000	1.0259	0.0000
10)	CP	Fluorene	1.255	1.199	1.247	1.317	1.265	1.228	1.349	1.457	1.290	6.43	A	0.0643	0.0000	1.2896	0.0000
11)	I	Phenanthrene-d10	----------ISTD----------														
12)	CP	Phenanthrene	1.053	0.952	0.964	1.011	0.939	0.892	0.894	0.882	0.948	6.41	A	0.0641	0.0000	0.9483	0.0000
13)	CP	Anthracene	1.058	0.990	1.011	1.126	1.000	0.942	0.934	0.923	0.998	6.90	A	0.0690	0.0000	0.9979	0.0000
14)	CP	Fluoranthene	1.205	1.113	1.161	1.264	1.157	1.075	1.023	0.994	1.124	8.12	A	0.0812	0.0000	1.1239	0.0000
15)	CP	Pyrene	1.253	1.151	1.189	1.277	1.155	1.066	1.023	1.001	1.140	8.94	A	0.0894	0.0000	1.1396	0.0000
16)	S	4-Terphenyl-d14	1.010	0.954	0.994	1.028	0.963	0.903	0.855	0.845	0.944	7.36	A	0.0736	0.0000	0.9440	0.0000
17)	I	Chrysene-d12	----------ISTD----------														
18)	CP	Benzo[a]anthra...	0.947	0.855	0.875	0.990	0.923	0.876	0.891	0.855	0.902	5.32	A	0.0532	0.0000	0.9016	0.0000
19)	CP	Chrysene	0.947	0.853	0.845	0.946	0.876	0.826	0.841	0.805	0.867	6.08	A	0.0608	0.0000	0.8673	0.0000
20)	I	Perylene-d12	----------ISTD----------														
21)	CP	Benzo[b]fluora...	0.973	0.828	0.891	1.032	0.948	0.917	0.914	0.883	0.923	6.71	A	0.0671	0.0000	0.9234	0.0000
22)	CP	Benzo[k]fluora...	0.907	0.808	0.852	0.933	0.865	0.858	0.833	0.721	0.847	7.59	A	0.0759	0.0000	0.8471	0.0000
23)	CP	Benzo(j)fluora...	0.829	0.817	0.829	0.855	0.825	0.798	0.801	0.759	0.814	3.49	A	0.0349	0.0000	0.8141	0.0000
24)	T	Benzo[e]pyrene	0.975	0.872	0.898	0.928	0.898	0.875	0.887	0.836	0.896	4.63	A	0.0463	0.0000	0.8961	0.0000
25)	CP	Benzo[a]pyrene	0.935	0.858	0.875	0.982	0.895	0.872	0.887	0.833	0.892	5.25	A	0.0525	0.0000	0.8922	0.0000
26)	CP	Dibenz[a,h]ant...	0.893	0.809	0.838	0.933	0.879	0.864	0.878	0.812	0.863	4.86	A	0.0486	0.0000	0.8634	0.0000
27)	CP	Indeno[1,2,3-c...	1.061	0.963	0.998	1.125	1.039	1.019	1.033	0.957	1.025	5.33	A	0.0533	0.0000	1.0246	0.0000
28)	CP	Benzo[g,h,i]pe...	0.926	0.814	0.832	0.928	0.863	0.850	0.863	0.790	0.858	5.73	A	0.0573	0.0000	0.8581	0.0000

(#) = Out of Range

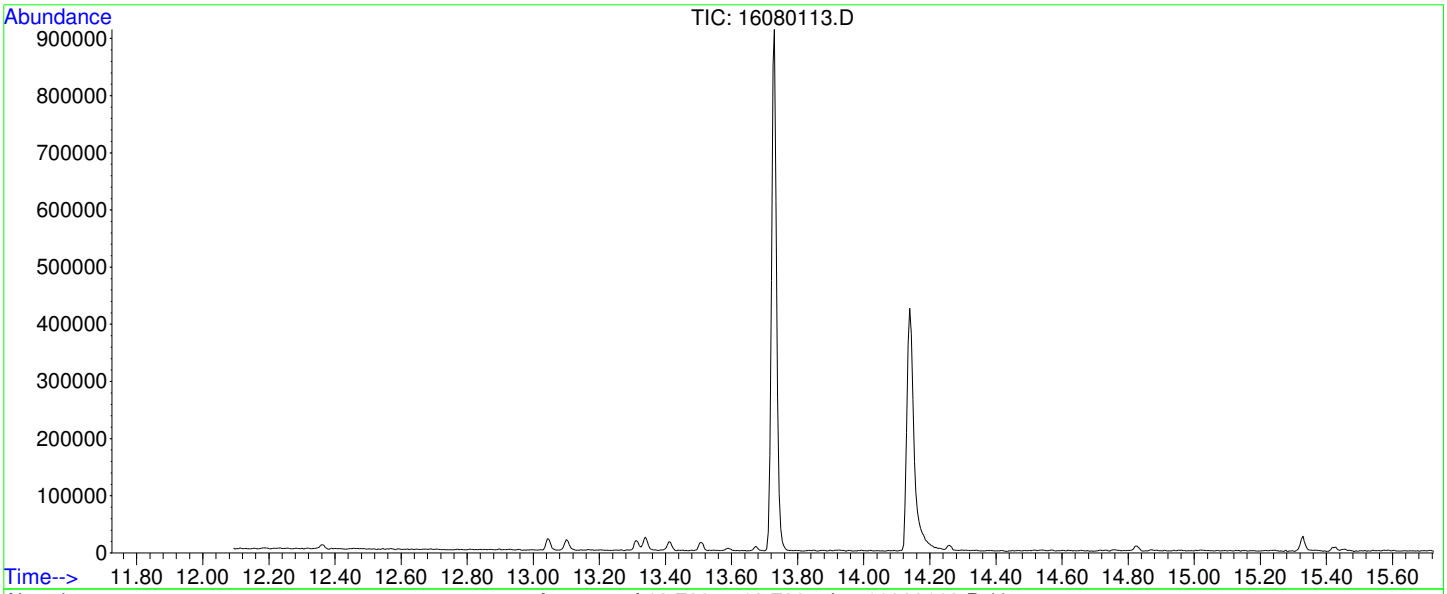
Sequence Name: C:\HPCHEM\1\SEQUENCE\160801.S
Comment:
Operator: DEW
Data Path: C:\HPCHEM\1\DATA\160801\
Pre-Seq Cmd:
Post-Seq Cmd:

Method Sections To Run
(X) Full Method
( ) Reprocessing Only

On A Barcode Mismatch
(X) Inject Anyway
( ) Don't Inject

Line	Type	Vial	DataFile	Method	Sample Name
1	Sample	1	16080101	PP160725	SBLK
2	Sample	2	16080102	DFTPPPAH	DFTPP-160801
3	Sample	3	16080103	PP160725	ICV-160801
4	Sample	4	16080104	PP160725	ICV-160801
5	Sample	5	16080105	PP160725	SB-160801
6	Sample	6	16080106	PP160725	1607269-12B
7					

Data File : C:\HPCHEM\1\DATA\160801\16080113.D Vial: 2
Acq On : 1 Aug 2016 6:30 pm Operator: DEW
Sample : DFTPP-160801 Inst : GC/MS #6
Misc : TUNE Multiplr: 5.00
MS Integration Params: RTEINT.P
Method : C:\HPCHEM\1\METHODS\DFTPPPAH.M (RTE Integrator)
Title : PAH Calibration



AutoFind: Scans 347, 348, 349; Background Corrected with Scan 341

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	10	80	39.5	31591	PASS
68	69	0.00	2	0.0	0	PASS
69	198	0.00	100	42.4	33861	PASS
70	69	0.00	2	0.0	0	PASS
127	198	10	80	53.9	43101	PASS
197	198	0.00	2	0.0	0	PASS
198	198	100	100	100.0	79947	PASS
199	198	5	9	7.0	5582	PASS
275	198	10	60	27.7	22112	PASS
365	198	1	200	3.7	2989	PASS
441	442	0.01	24	14.9	13202	PASS
442	198	50	400	111.1	88832	PASS
443	442	15	24	19.8	17564	PASS

REVIEWED/APPROVED
By Sherri Herschmann at 9:24:00 AM, 8/10/2016

Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160801\16080115.D Vial: 3
Acq On : 1 Aug 2016 7:50 pm Operator: DEW
Sample : CAL1 (5 ppb) Inst : GC/MS #6
Misc : CAL1 Multiplr: 5.00
MS Integration Params: RTEINT.P
Quant Time: Aug 2 9:43 2016 Quant Results File: PP160801.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration
DataAcq Meth : PP160725

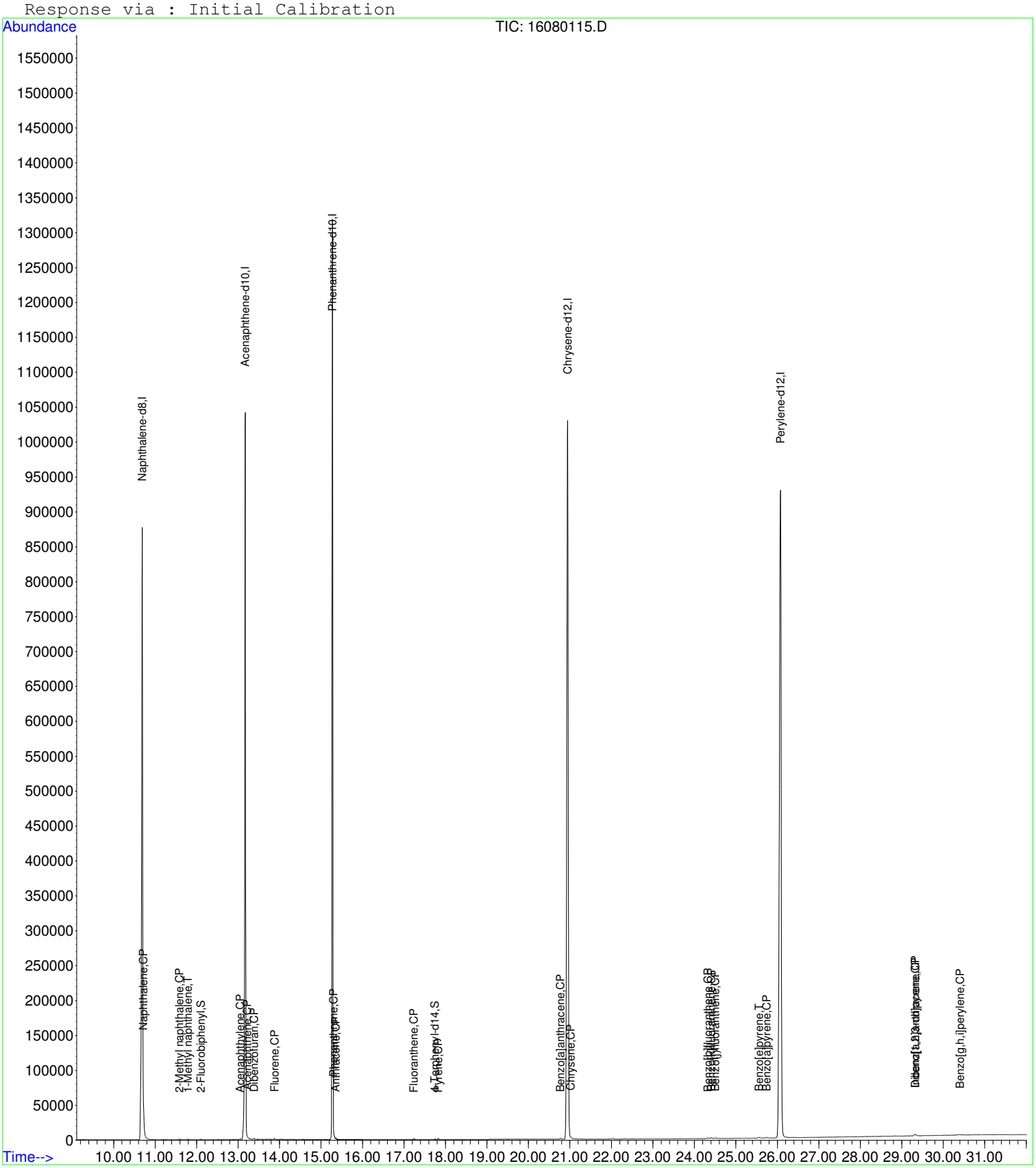
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.69	136	1503719	4000.00	ug/kg	107
5) Acenaphthene-d10	13.17	164	680588	4000.00	ug/kg	114
11) Phenanthrene-d10	15.28	188	1532486	4000.00	ug/kg	96
17) Chrysene-d12	20.95	240	1863885	4000.00	ug/kg	102
20) Perylene-d12	26.08	264	1934687	4000.00	ug/kg	100
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.10	172	1280	5.39	ug/kg	0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery =	0.13%#		
16) 4-Terphenyl-d14	17.74	244	1935	5.35	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	0.13%#		
Target Compounds						Qvalue
2) Naphthalene	10.72	128	1997	5.84	ug/kg	99
3) 2-Methyl naphthalene	11.59	142	1234	5.56	ug/kg	96
4) 1-Methyl naphthalene	11.79	142	1069	5.44	ug/kg	98
6) Dibenzofuran	13.39	168	1578	5.73	ug/kg	92
8) Acenaphthylene	13.06	152	1624	5.39	ug/kg	95
9) Acenaphthene	13.22	154	931	5.33	ug/kg	89
10) Fluorene	13.87	166	1068	4.87	ug/kg	99
12) Phenanthrene	15.31	178	2017	5.55	ug/kg	96
13) Anthracene	15.35	178	2027	5.30	ug/kg	98
14) Fluoranthene	17.24	202	2308	5.36	ug/kg	96
15) Pyrene	17.82	202	2400	5.50	ug/kg	98
18) Benzo[a]anthracene	20.77	228	2207	5.25	ug/kg	92
19) Chrysene	21.02	228	2206	5.46	ug/kg	96
21) Benzo[b]fluoranthene	24.34	252	2354	5.27	ug/kg	99
22) Benzo[k]fluoranthene	24.41	252	2193	5.35	ug/kg	97
23) Benzo(j)fluoranthene	24.51	252	2005	5.09	ug/kg	90
24) Benzo[e]pyrene	25.56	252	2359	5.44	ug/kg	79
25) Benzo[a]pyrene	25.74	252	2262	5.24	ug/kg	98
26) Dibenz[a,h]anthracene	29.32	278	2159	5.17	ug/kg	93
27) Indeno[1,2,3-cd]pyrene	29.33	276	2567	5.18	ug/kg	90
28) Benzo[g,h,i]perylene	30.39	276	2240	5.40	ug/kg	98

(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160801\16080115.D Vial: 3
Acq On : 1 Aug 2016 7:50 pm Operator: DEW
Sample : CAL1 (5 ppb) Inst : GC/MS #6
Misc : CAL1 Multiplr: 5.00
MS Integration Params: RTEINT.P
Quant Time: Aug 2 9:43 2016 Quant Results File: PP160801.RES

Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160801\16080116.D Vial: 4
Acq On : 1 Aug 2016 8:32 pm Operator: DEW
Sample : CAL2 (10 ppb) Inst : GC/MS #6
Misc : CAL Multiplr: 5.00
MS Integration Params: RTEINT.P
Quant Time: Aug 2 9:43 2016 Quant Results File: PP160801.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration
DataAcq Meth : PP160725

Reprocessed low point.

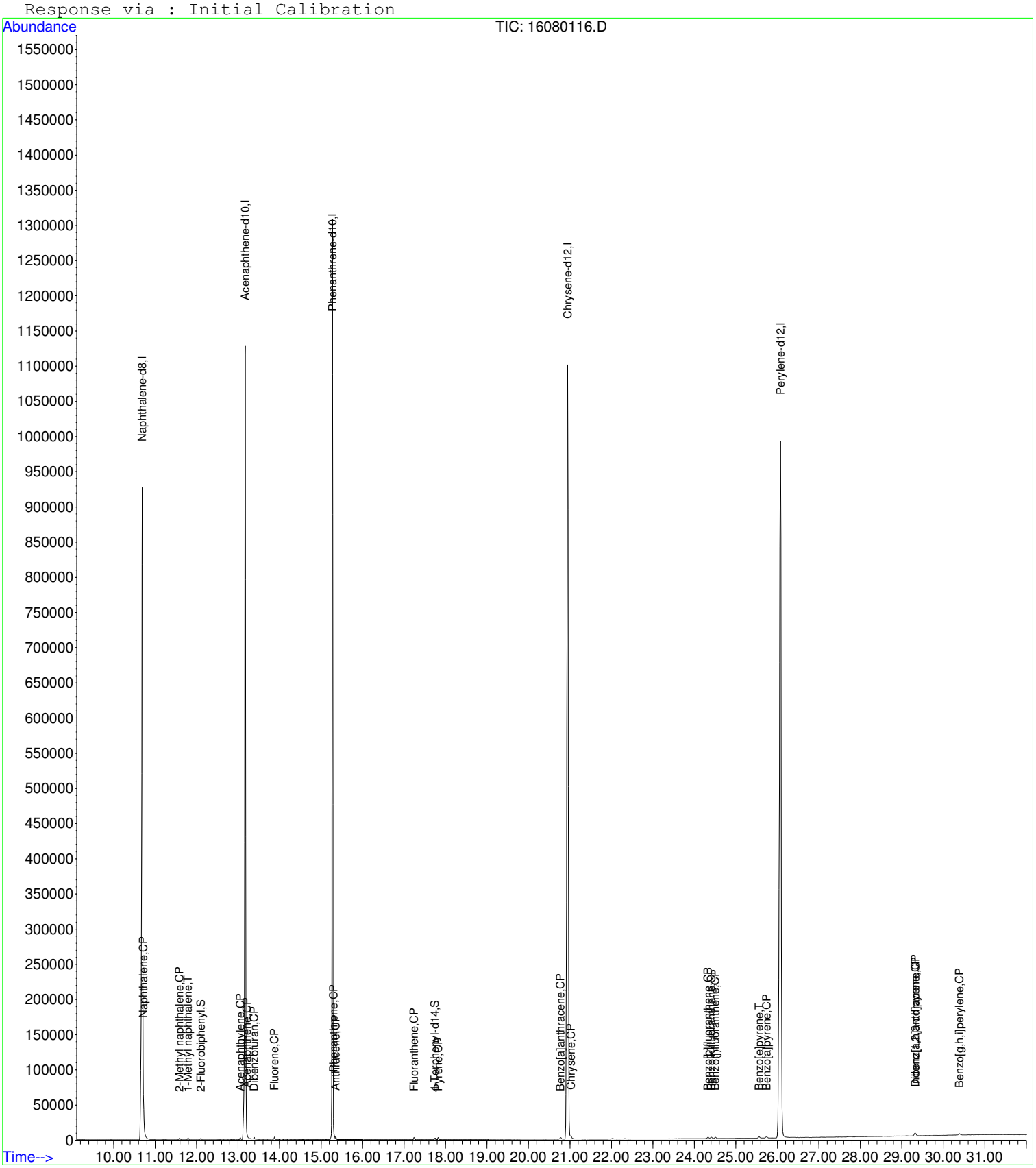
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.69	136	1613626	4000.00	ug/kg	115
5) Acenaphthene-d10	13.17	164	738139	4000.00	ug/kg	123
11) Phenanthrene-d10	15.28	188	1503918	4000.00	ug/kg	95
17) Chrysene-d12	20.95	240	1941488	4000.00	ug/kg	106
20) Perylene-d12	26.08	264	2020745	4000.00	ug/kg	105
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.10	172	2618	10.17	ug/kg	0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery = 0.25%#			
16) 4-Terphenyl-d14	17.74	244	3587	10.11	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 0.25%#			
Target Compounds						Qvalue
2) Naphthalene	10.72	128	3857	10.51	ug/kg	99
3) 2-Methyl naphthalene	11.59	142	2448	10.29	ug/kg	94
4) 1-Methyl naphthalene	11.79	142	2127	10.09	ug/kg	97
6) Dibenzofuran	13.39	168	3037	10.17	ug/kg	97
8) Acenaphthylene	13.05	152	3277	10.03	ug/kg	98
9) Acenaphthene	13.22	154	1887	9.97	ug/kg	98
10) Fluorene	13.87	166	2212	9.30	ug/kg	95
12) Phenanthrene	15.31	178	3581	10.04	ug/kg	99
13) Anthracene	15.35	178	3721	9.92	ug/kg	99
14) Fluoranthene	17.24	202	4183	9.90	ug/kg	96
15) Pyrene	17.82	202	4329	10.10	ug/kg	97
18) Benzo[a]anthracene	20.77	228	4152	9.49	ug/kg	99
19) Chrysene	21.02	228	4140	9.83	ug/kg	95
21) Benzo[b]fluoranthene	24.33	252	4184	8.97	ug/kg	91
22) Benzo[k]fluoranthene	24.41	252	4082	9.54	ug/kg	91
23) Benzo(j)fluoranthene	24.51	252	4125	10.03	ug/kg	96
24) Benzo[e]pyrene	25.56	252	4403	9.73	ug/kg	95
25) Benzo[a]pyrene	25.74	252	4335	9.62	ug/kg	97
26) Dibenz[a,h]anthracene	29.32	278	4089	9.37	ug/kg	98
27) Indeno[1,2,3-cd]pyrene	29.32	276	4864	9.40	ug/kg	97
28) Benzo[g,h,i]perylene	30.39	276	4112	9.49	ug/kg	98

(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160801\16080116.D Vial: 4
Acq On : 1 Aug 2016 8:32 pm Operator: DEW
Sample : CAL2 (10 ppb) Inst : GC/MS #6
Misc : CAL Multiplr: 5.00
MS Integration Params: RTEINT.P
Quant Time: Aug 2 9:43 2016 Quant Results File: PP160801.RES

Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160801\16080117.D Vial: 5
Acq On : 1 Aug 2016 9:11 pm Operator: DEW
Sample : CAL3 (50 ppb) Inst : GC/MS #6
Misc : CAL Multiplr: 5.00
MS Integration Params: RTEINT.P
Quant Time: Aug 2 9:43 2016 Quant Results File: PP160801.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration
DataAcq Meth : PP160725

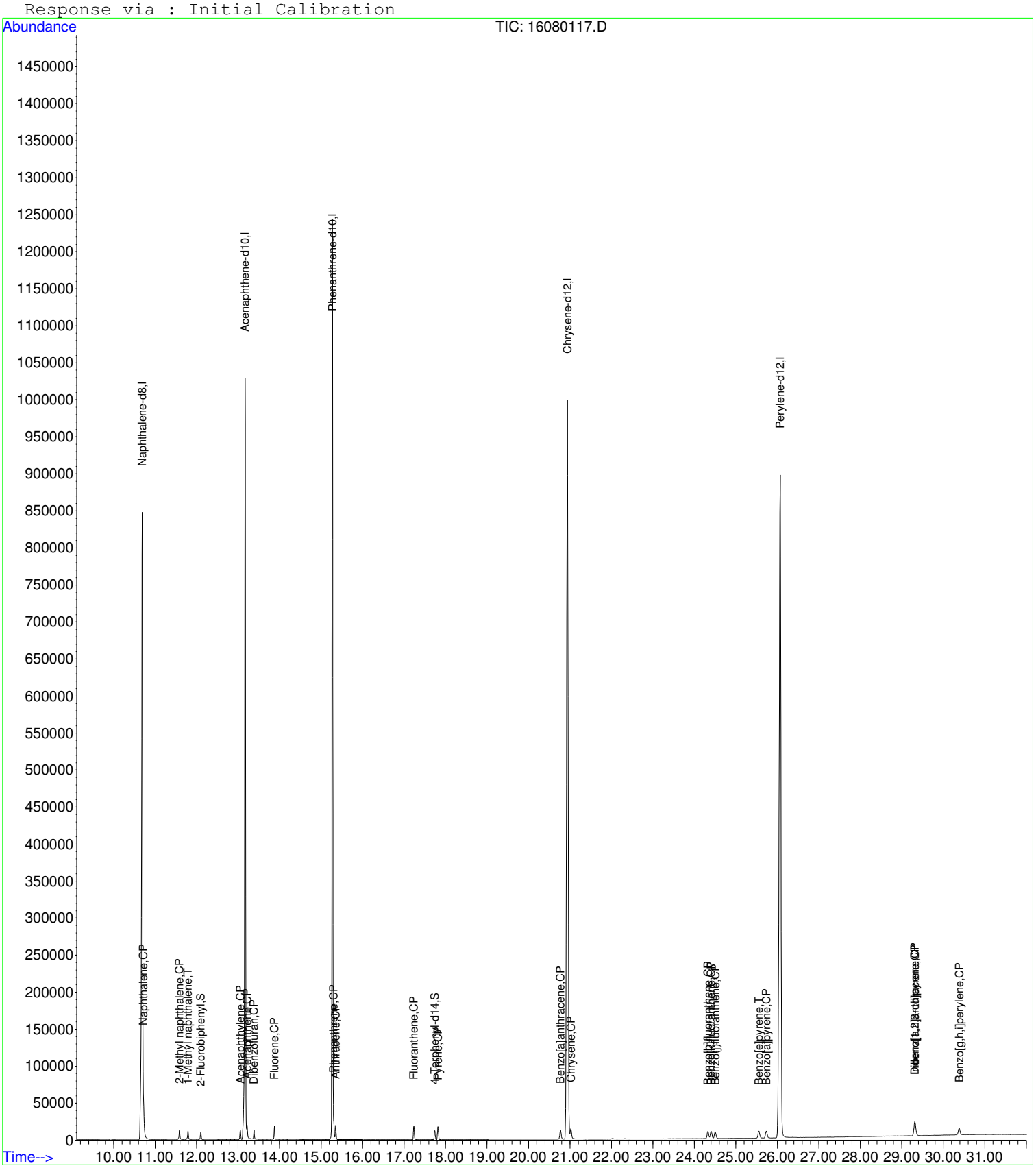
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.69	136	1483617	4000.00	ug/kg	106
5) Acenaphthene-d10	13.17	164	671495	4000.00	ug/kg	112
11) Phenanthrene-d10	15.27	188	1461166	4000.00	ug/kg	92
17) Chrysene-d12	20.94	240	1828455	4000.00	ug/kg	100
20) Perylene-d12	26.07	264	1813783	4000.00	ug/kg	94
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.10	172	11900	50.81	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.27%#		
16) 4-Terphenyl-d14	17.74	244	18151	52.64	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.32%#		
Target Compounds						Qvalue
2) Naphthalene	10.72	128	16729	49.56	ug/kg	99
3) 2-Methyl naphthalene	11.59	142	11175	51.07	ug/kg	98
4) 1-Methyl naphthalene	11.79	142	9975	51.46	ug/kg	99
6) Dibenzofuran	13.38	168	13386	49.26	ug/kg	99
8) Acenaphthylene	13.05	152	14476	48.68	ug/kg	99
9) Acenaphthene	13.22	154	8199	47.61	ug/kg	98
10) Fluorene	13.87	166	10463	48.33	ug/kg	99
12) Phenanthrene	15.31	178	17603	50.81	ug/kg	98
13) Anthracene	15.35	178	18474	50.68	ug/kg	98
14) Fluoranthene	17.24	202	21208	51.66	ug/kg	98
15) Pyrene	17.82	202	21714	52.16	ug/kg	98
18) Benzo[a]anthracene	20.77	228	20007	48.55	ug/kg	98
19) Chrysene	21.02	228	19314	48.71	ug/kg	100
21) Benzo[b]fluoranthene	24.33	252	20206	48.26	ug/kg	99
22) Benzo[k]fluoranthene	24.40	252	19325	50.31	ug/kg	97
23) Benzo(j)fluoranthene	24.51	252	18806	50.94	ug/kg	99
24) Benzo[e]pyrene	25.55	252	20368	50.13	ug/kg	98
25) Benzo[a]pyrene	25.73	252	19849	49.06	ug/kg	99
26) Dibenz[a,h]anthracene	29.32	278	19000	48.53	ug/kg	98
27) Indeno[1,2,3-cd]pyrene	29.32	276	22630	48.71	ug/kg	96
28) Benzo[g,h,i]perylene	30.39	276	18855	48.46	ug/kg	100

(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160801\16080117.D Vial: 5
Acq On : 1 Aug 2016 9:11 pm Operator: DEW
Sample : CAL3 (50 ppb) Inst : GC/MS #6
Misc : CAL Multiplr: 5.00
MS Integration Params: RTEINT.P
Quant Time: Aug 2 9:43 2016 Quant Results File: PP160801.RES

Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160801\16080118.D Vial: 6
Acq On : 1 Aug 2016 9:51 pm Operator: DEW
Sample : CAL4 (100 ppb) Inst : GC/MS #6
Misc : CAL Multiplr: 5.00
MS Integration Params: RTEINT.P
Quant Time: Aug 2 9:44 2016 Quant Results File: PP160801.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration
DataAcq Meth : PP160725

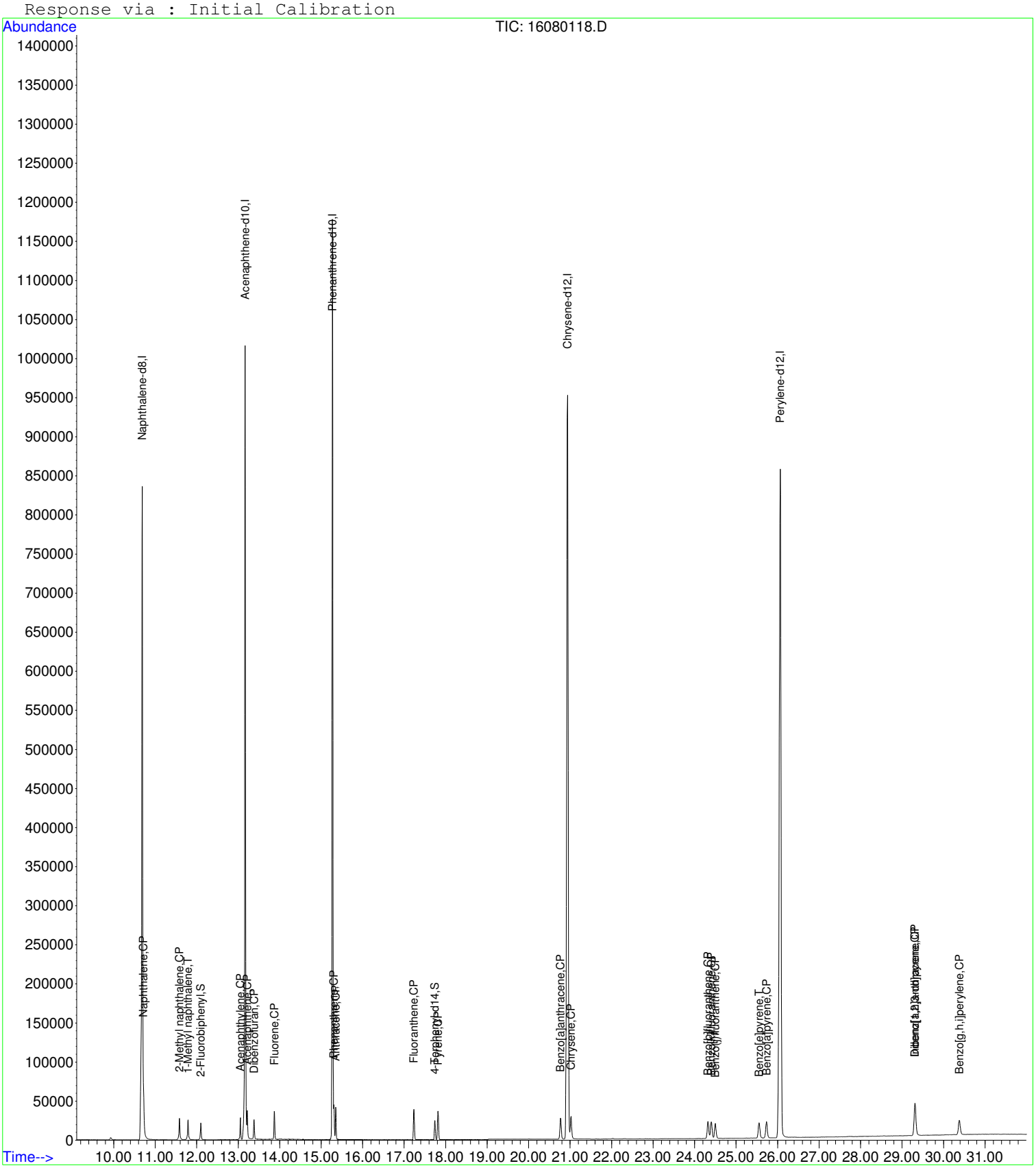
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.69	136	1417424	4000.00	ug/kg	101
5) Acenaphthene-d10	13.17	164	638853	4000.00	ug/kg	107
11) Phenanthrene-d10	15.27	188	1381998	4000.00	ug/kg	87
17) Chrysene-d12	20.94	240	1743437	4000.00	ug/kg	95
20) Perylene-d12	26.06	264	1747505	4000.00	ug/kg	91
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.10	172	23943	107.44	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.69%#		
16) 4-Terphenyl-d14	17.74	244	35511	108.88	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.72%#		
Target Compounds						Qvalue
2) Naphthalene	10.72	128	33760	104.68	ug/kg	99
3) 2-Methyl naphthalene	11.59	142	22472	107.49	ug/kg	99
4) 1-Methyl naphthalene	11.79	142	19870	107.30	ug/kg	99
6) Dibenzofuran	13.38	168	26743	103.44	ug/kg	100
8) Acenaphthylene	13.05	152	29673	104.89	ug/kg	98
9) Acenaphthene	13.22	154	16709	101.98	ug/kg	100
10) Fluorene	13.87	166	21036	102.14	ug/kg	99
12) Phenanthrene	15.31	178	34943	106.65	ug/kg	98
13) Anthracene	15.35	178	38892	112.81	ug/kg	99
14) Fluoranthene	17.23	202	43667	112.46	ug/kg	99
15) Pyrene	17.82	202	44128	112.08	ug/kg	100
18) Benzo[a]anthracene	20.77	228	43135	109.77	ug/kg	99
19) Chrysene	21.02	228	41212	109.01	ug/kg	99
21) Benzo[b]fluoranthene	24.32	252	45107	111.81	ug/kg	99
22) Benzo[k]fluoranthene	24.40	252	40745	110.09	ug/kg	99
23) Benzo(j)fluoranthene	24.50	252	37339	104.98	ug/kg	97
24) Benzo[e]pyrene	25.55	252	40550	103.58	ug/kg	100
25) Benzo[a]pyrene	25.73	252	42902	110.06	ug/kg	98
26) Dibenz[a,h]anthracene	29.31	278	40760	108.06	ug/kg	99
27) Indeno[1,2,3-cd]pyrene	29.32	276	49167	109.84	ug/kg	95
28) Benzo[g,h,i]perylene	30.38	276	40533	108.12	ug/kg	99

(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160801\16080118.D Vial: 6
Acq On : 1 Aug 2016 9:51 pm Operator: DEW
Sample : CAL4 (100 ppb) Inst : GC/MS #6
Misc : CAL Multiplr: 5.00
MS Integration Params: RTEINT.P
Quant Time: Aug 2 9:44 2016 Quant Results File: PP160801.RES

Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160801\16080119.D Vial: 7
Acq On : 1 Aug 2016 10:31 pm Operator: DEW
Sample : CAL5 (500 ppb) Inst : GC/MS #6
Misc : CAL Multiplr: 5.00
MS Integration Params: RTEINT.P
Quant Time: Aug 2 9:44 2016 Quant Results File: PP160801.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration
DataAcq Meth : PP160725

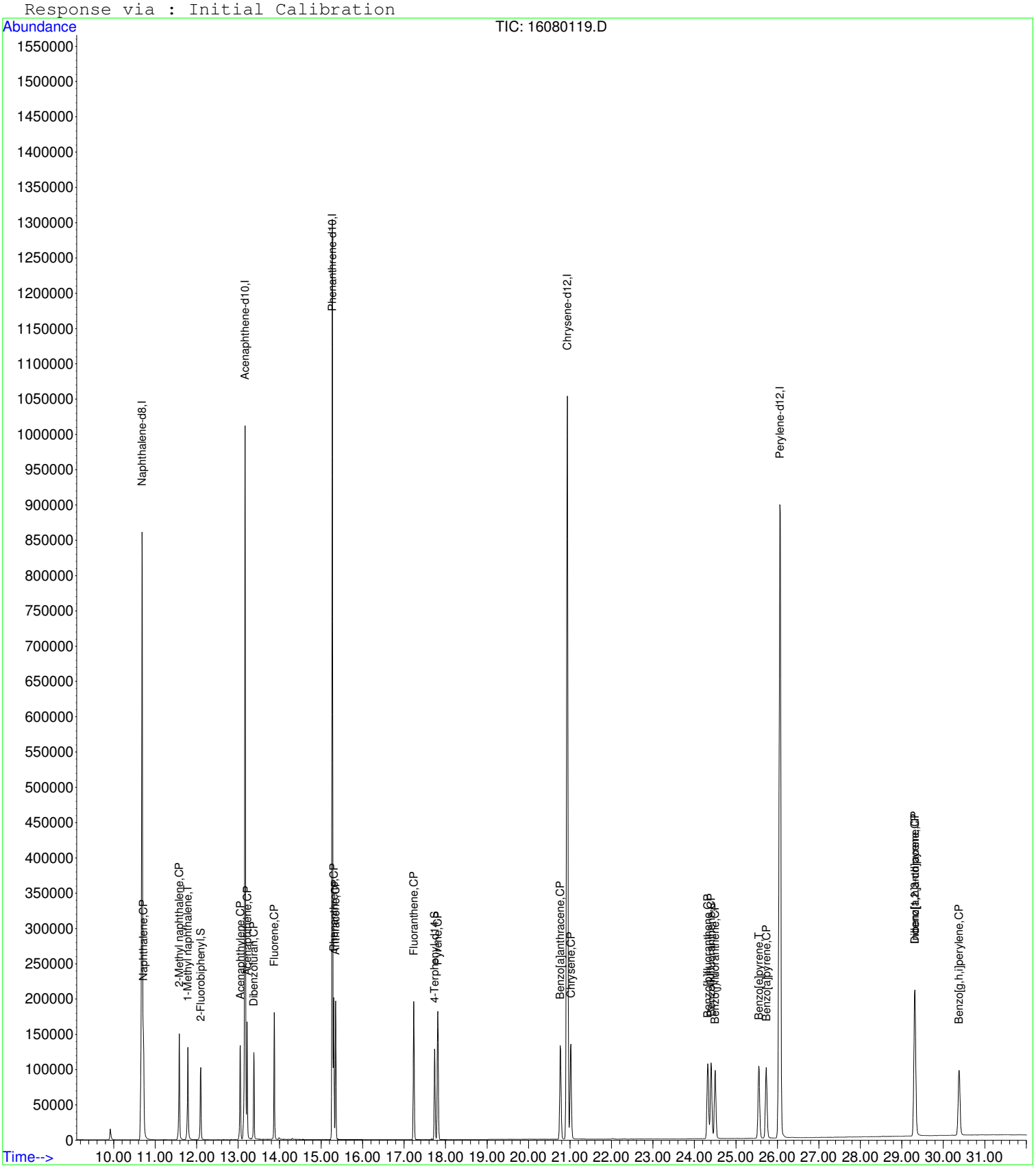
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.68	136	1438697	4000.00	ug/kg	103
5) Acenaphthene-d10	13.17	164	632331	4000.00	ug/kg	105
11) Phenanthrene-d10	15.27	188	1502812	4000.00	ug/kg	94
17) Chrysene-d12	20.94	240	1837823	4000.00	ug/kg	100
20) Perylene-d12	26.06	264	1862883	4000.00	ug/kg	97
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.10	172	110883	502.72	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 12.57%#			
16) 4-Terphenyl-d14	17.74	244	180912	510.12	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 12.75%#			
Target Compounds						Qvalue
2) Naphthalene	10.72	128	157338	480.66	ug/kg	99
3) 2-Methyl naphthalene	11.58	142	104597	492.90	ug/kg	98
4) 1-Methyl naphthalene	11.79	142	93561	497.76	ug/kg	97
6) Dibenzofuran	13.38	168	123371	482.11	ug/kg	100
8) Acenaphthylene	13.05	152	140359	501.25	ug/kg	99
9) Acenaphthene	13.22	154	82644	509.59	ug/kg	98
10) Fluorene	13.87	166	99953	490.30	ug/kg	100
12) Phenanthrene	15.30	178	176305	494.83	ug/kg	99
13) Anthracene	15.35	178	187904	501.21	ug/kg	99
14) Fluoranthene	17.23	202	217298	514.64	ug/kg	99
15) Pyrene	17.81	202	217006	506.86	ug/kg	99
18) Benzo[a]anthracene	20.77	228	212082	511.98	ug/kg	99
19) Chrysene	21.02	228	201242	504.99	ug/kg	100
21) Benzo[b]fluoranthene	24.32	252	220851	513.54	ug/kg	100
22) Benzo[k]fluoranthene	24.40	252	201349	510.35	ug/kg	99
23) Benzo(j)fluoranthene	24.50	252	192031	506.48	ug/kg	99
24) Benzo[e]pyrene	25.55	252	208998	500.78	ug/kg	99
25) Benzo[a]pyrene	25.73	252	208397	501.53	ug/kg	100
26) Dibenz[a,h]anthracene	29.31	278	204642	508.93	ug/kg	99
27) Indeno[1,2,3-cd]pyrene	29.32	276	241930	507.01	ug/kg	98
28) Benzo[g,h,i]perylene	30.39	276	200928	502.75	ug/kg	99

(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160801\16080119.D Vial: 7
Acq On : 1 Aug 2016 10:31 pm Operator: DEW
Sample : CAL5 (500 ppb) Inst : GC/MS #6
Misc : CAL Multiplr: 5.00
MS Integration Params: RTEINT.P
Quant Time: Aug 2 9:44 2016 Quant Results File: PP160801.RES

Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160801\16080120.D Vial: 8
Acq On : 1 Aug 2016 11:11 pm Operator: DEW
Sample : CAL6 (1000 ppb) Inst : GC/MS #6
Misc : CAL Multiplr: 5.00
MS Integration Params: RTEINT.P
Quant Time: Aug 2 9:44 2016 Quant Results File: PP160801.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration
DataAcq Meth : PP160725

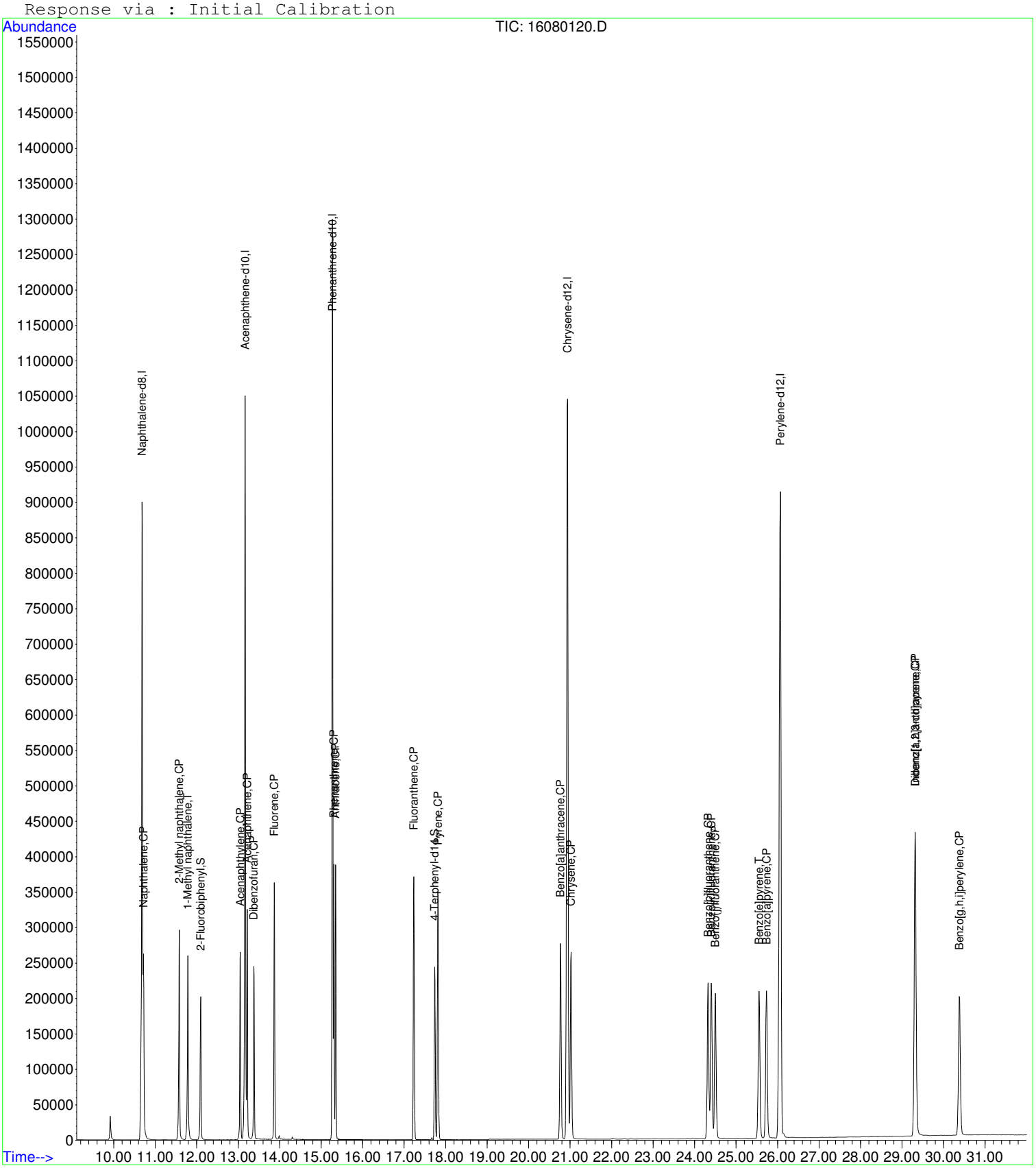
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.68	136	1499252	4000.00	ug/kg	107
5) Acenaphthene-d10	13.17	164	657692	4000.00	ug/kg	110
11) Phenanthrene-d10	15.27	188	1538575	4000.00	ug/kg	97
17) Chrysene-d12	20.94	240	1921341	4000.00	ug/kg	105
20) Perylene-d12	26.07	264	1969102	4000.00	ug/kg	102
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.10	172	218820	953.83	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 23.85%#			
16) 4-Terphenyl-d14	17.74	244	347243	956.36	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 23.91%#			
Target Compounds						Qvalue
2) Naphthalene	10.72	128	314807	922.87	ug/kg	100
3) 2-Methyl naphthalene	11.58	142	208479	942.76	ug/kg	99
4) 1-Methyl naphthalene	11.79	142	186882	954.08	ug/kg	98
6) Dibenzofuran	13.38	168	245676	923.04	ug/kg	100
8) Acenaphthylene	13.05	152	281204	965.50	ug/kg	100
9) Acenaphthene	13.22	154	164497	975.20	ug/kg	99
10) Fluorene	13.87	166	201948	952.42	ug/kg	100
12) Phenanthrene	15.30	178	342999	940.32	ug/kg	100
13) Anthracene	15.35	178	362165	943.57	ug/kg	99
14) Fluoranthene	17.23	202	413506	956.56	ug/kg	99
15) Pyrene	17.81	202	410166	935.76	ug/kg	100
18) Benzo[a]anthracene	20.77	228	420793	971.67	ug/kg	99
19) Chrysene	21.02	228	396650	952.07	ug/kg	99
21) Benzo[b]fluoranthene	24.33	252	451182	992.53	ug/kg	99
22) Benzo[k]fluoranthene	24.40	252	422580	1013.31	ug/kg	100
23) Benzo(j)fluoranthene	24.50	252	392898	980.36	ug/kg	99
24) Benzo[e]pyrene	25.55	252	430721	976.39	ug/kg	99
25) Benzo[a]pyrene	25.73	252	429307	977.43	ug/kg	100
26) Dibenz[a,h]anthracene	29.32	278	425555	1001.23	ug/kg	100
27) Indeno[1,2,3-cd]pyrene	29.32	276	501658	994.61	ug/kg	96
28) Benzo[g,h,i]perylene	30.38	276	418580	990.85	ug/kg	99

(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160801\16080120.D Vial: 8
Acq On : 1 Aug 2016 11:11 pm Operator: DEW
Sample : CAL6 (1000 ppb) Inst : GC/MS #6
Misc : CAL Multiplr: 5.00
MS Integration Params: RTEINT.P
Quant Time: Aug 2 9:44 2016 Quant Results File: PP160801.RES

Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160801\16080121.D Vial: 9
Acq On : 1 Aug 2016 11:50 pm Operator: DEW
Sample : CAL7 (2000 ppb) Inst : GC/MS #6
Misc : CAL Multiplr: 5.00
MS Integration Params: RTEINT.P
Quant Time: Aug 2 9:44 2016 Quant Results File: PP160801.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration
DataAcq Meth : PP160725

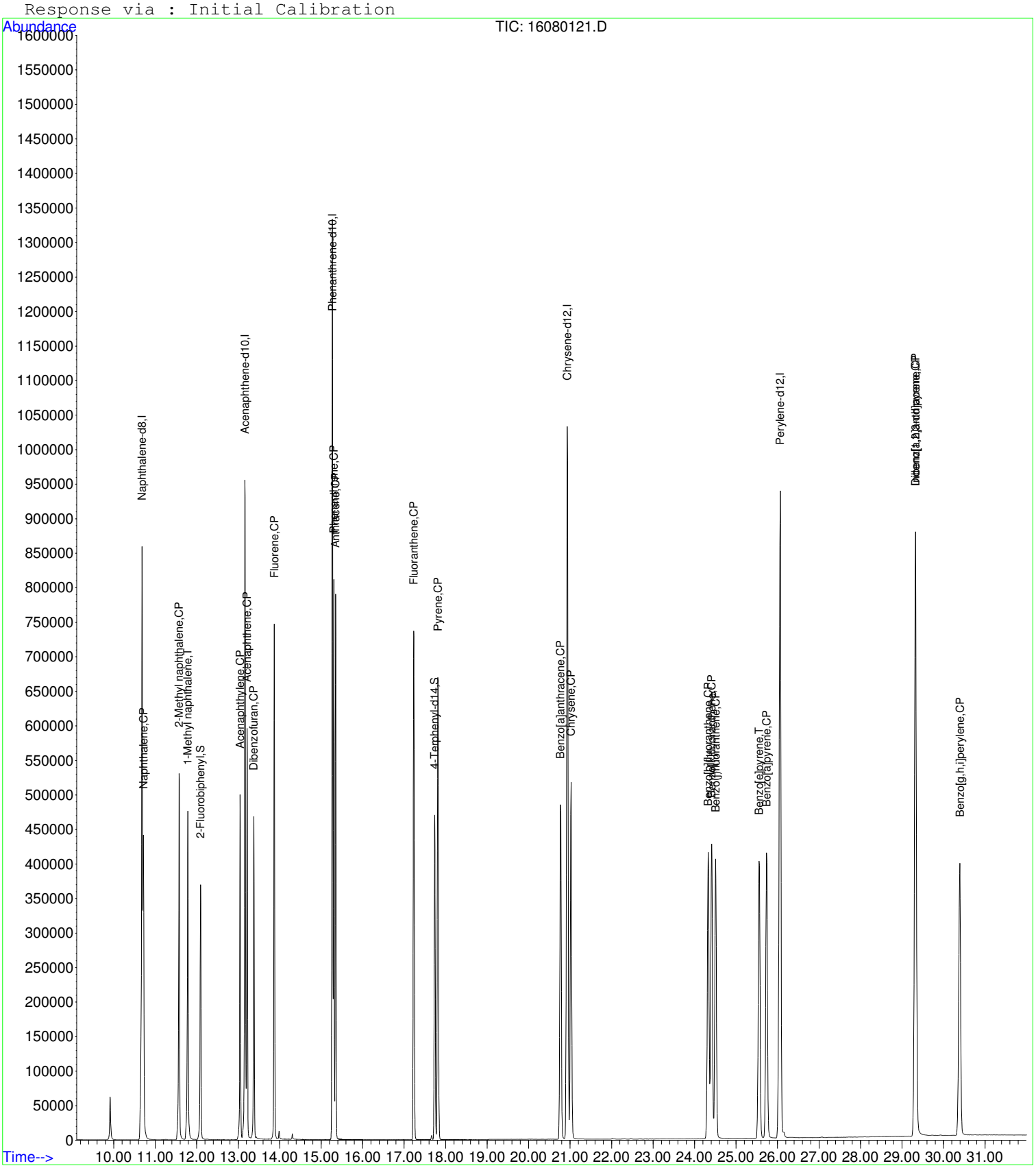
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.68	136	1403212	4000.00	ug/kg	100
5) Acenaphthene-d10	13.16	164	599493	4000.00	ug/kg	100
11) Phenanthrene-d10	15.27	188	1590654	4000.00	ug/kg	100
17) Chrysene-d12	20.93	240	1834195	4000.00	ug/kg	100
20) Perylene-d12	26.06	264	1928719	4000.00	ug/kg	100
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.09	172	398885	1907.53	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	47.69%		
16) 4-Terphenyl-d14	17.74	244	679973	1811.44	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	45.29%		
Target Compounds						Qvalue
2) Naphthalene	10.72	128	591164	1851.64	ug/kg	100
3) 2-Methyl naphthalene	11.58	142	381572	1843.59	ug/kg	100
4) 1-Methyl naphthalene	11.79	142	343340	1872.80	ug/kg	100
6) Dibenzofuran	13.38	168	463067	1908.71	ug/kg	100
8) Acenaphthylene	13.05	152	515239	1940.79	ug/kg	100
9) Acenaphthene	13.21	154	301528	1961.11	ug/kg	100
10) Fluorene	13.87	166	404242	2091.56	ug/kg	100
12) Phenanthrene	15.30	178	710635	1884.39	ug/kg	100
13) Anthracene	15.35	178	742459	1871.03	ug/kg	100
14) Fluoranthene	17.23	202	813605	1820.49	ug/kg	100
15) Pyrene	17.81	202	813802	1795.83	ug/kg	100
18) Benzo[a]anthracene	20.77	228	817037	1976.30	ug/kg	100
19) Chrysene	21.02	228	771703	1940.31	ug/kg	100
21) Benzo[b]fluoranthene	24.33	252	881066	1978.79	ug/kg	100
22) Benzo[k]fluoranthene	24.41	252	803567	1967.23	ug/kg	100
23) Benzo(j)fluoranthene	24.51	252	772683	1968.36	ug/kg	100
24) Benzo[e]pyrene	25.55	252	855110	1979.00	ug/kg	100
25) Benzo[a]pyrene	25.73	252	855355	1988.22	ug/kg	100
26) Dibenz[a,h]anthracene	29.32	278	847106	2034.76	ug/kg	100
27) Indeno[1,2,3-cd]pyrene	29.32	276	996633	2017.34	ug/kg	100
28) Benzo[g,h,i]perylene	30.39	276	831770	2010.17	ug/kg	100

(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160801\16080121.D Vial: 9
Acq On : 1 Aug 2016 11:50 pm Operator: DEW
Sample : CAL7 (2000 ppb) Inst : GC/MS #6
Misc : CAL Multiplr: 5.00
MS Integration Params: RTEINT.P
Quant Time: Aug 2 9:44 2016 Quant Results File: PP160801.RES

Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160801\16080122.D Vial: 10
Acq On : 2 Aug 2016 12:29 am Operator: DEW
Sample : CAL8 (5000 ppb) Inst : GC/MS #6
Misc : CAL Multiplr: 5.00
MS Integration Params: RTEINT.P
Quant Time: Aug 2 9:44 2016 Quant Results File: PP160801.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration
DataAcq Meth : PP160725

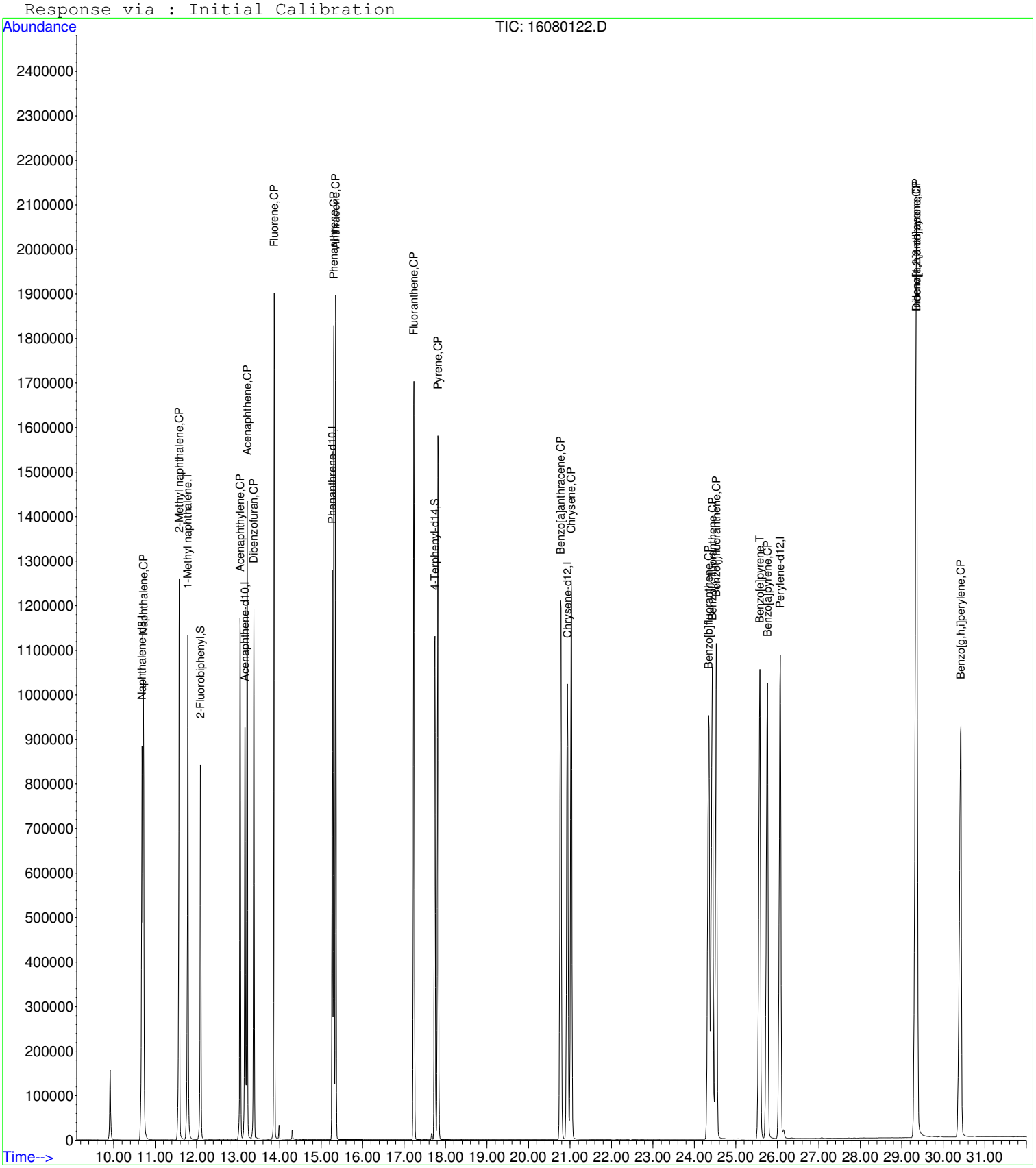
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.68	136	1300974	4000.00	ug/kg	93
5) Acenaphthene-d10	13.16	164	578980	4000.00	ug/kg	97
11) Phenanthrene-d10	15.27	188	1540055	4000.00	ug/kg	97
17) Chrysene-d12	20.94	240	1926331	4000.00	ug/kg	105
20) Perylene-d12	26.07	264	2158387	4000.00	ug/kg	112
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.09	172	910049	4506.18	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 112.65%			
16) 4-Terphenyl-d14	17.74	244	1626864	4476.35	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 111.91%			
Target Compounds						Qvalue
2) Naphthalene	10.72	128	1382400	4670.22	ug/kg	99
3) 2-Methyl naphthalene	11.58	142	875199	4560.89	ug/kg	99
4) 1-Methyl naphthalene	11.79	142	777314	4573.18	ug/kg	98
6) Dibenzofuran	13.38	168	1143687	4881.17	ug/kg	99
8) Acenaphthylene	13.05	152	1229331	4794.69	ug/kg	99
9) Acenaphthene	13.22	154	734765	4948.15	ug/kg	98
10) Fluorene	13.87	166	1054816	5651.02	ug/kg	99
12) Phenanthrene	15.31	178	1698584	4652.11	ug/kg	99
13) Anthracene	15.35	178	1776151	4623.05	ug/kg	99
14) Fluoranthene	17.24	202	1912825	4420.67	ug/kg	99
15) Pyrene	17.82	202	1927732	4393.72	ug/kg	99
18) Benzo[a]anthracene	20.77	228	2058265	4740.53	ug/kg	99
19) Chrysene	21.03	228	1938788	4641.58	ug/kg	99
21) Benzo[b]fluoranthene	24.34	252	2383619	4783.74	ug/kg	99
22) Benzo[k]fluoranthene	24.43	252	1945183	4255.32	ug/kg	99
23) Benzo(j)fluoranthene	24.53	252	2048212	4662.49	ug/kg	99
24) Benzo[e]pyrene	25.58	252	2256081	4665.72	ug/kg	99
25) Benzo[a]pyrene	25.76	252	2246996	4667.24	ug/kg	99
26) Dibenz[a,h]anthracene	29.35	278	2191792	4704.51	ug/kg	98
27) Indeno[1,2,3-cd]pyrene	29.36	276	2582958	4671.97	ug/kg	98
28) Benzo[g,h,i]perylene	30.42	276	2131025	4602.12	ug/kg	99

(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160801\16080122.D Vial: 10
Acq On : 2 Aug 2016 12:29 am Operator: DEW
Sample : CAL8 (5000 ppb) Inst : GC/MS #6
Misc : CAL Multiplr: 5.00
MS Integration Params: RTEINT.P
Quant Time: Aug 2 9:44 2016 Quant Results File: PP160801.RES

Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160801\16080123.D Vial: 11
Acq On : 2 Aug 2016 1:09 am Operator: DEW
Sample : SSCV (2500 ppb) Inst : GC/MS #6
Misc : ICV Multiplr: 5.00
MS Integration Params: RTEINT.P
Quant Time: Aug 2 9:44 2016 Quant Results File: PP160801.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration
DataAcq Meth : PP160725

Dibenzofuran and benzo(J)fluoranthene SSCV.

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.68	136	1325276	4000.00	ug/kg	94
5) Acenaphthene-d10	13.16	164	707178	4000.00	ug/kg	118
11) Phenanthrene-d10	15.27	188	1448385	4000.00	ug/kg	91
17) Chrysene-d12	20.93	240	1824407	4000.00	ug/kg	99
20) Perylene-d12	26.06	264	1845448	4000.00	ug/kg	96
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.10	172	49	0.20	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	0.01%#		
16) 4-Terphenyl-d14	17.74	244	223	0.65	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	0.02%#		
Target Compounds						Qvalue
2) Naphthalene	10.72	128	159	0.53	ug/kg	88
3) 2-Methyl naphthalene	11.58	142	146	0.75	ug/kg	83
4) 1-Methyl naphthalene	11.79	142	32	0.18	ug/kg	89
6) Dibenzofuran	13.38	168	646698	2259.71	ug/kg	100
8) Acenaphthylene	13.05	152	144	0.46	ug/kg	70
9) Acenaphthene	13.21	154	171	0.94	ug/kg	87
10) Fluorene	13.87	166	5788	25.39	ug/kg	99
12) Phenanthrene	15.30	178	1058	3.08	ug/kg	95
13) Anthracene	15.35	178	2627	7.27	ug/kg	96
14) Fluoranthene	17.23	202	1405	3.45	ug/kg	94
15) Pyrene	17.81	202	1483	3.59	ug/kg	99
18) Benzo[a]anthracene	20.77	228	3151	7.66	ug/kg	98
19) Chrysene	21.01	228	2940	7.43	ug/kg	99
21) Benzo[b]fluoranthene	0.00	252	0	N.D.		
22) Benzo[k]fluoranthene	24.50	252	927856	~~2374.00 ug/kg~~		~~96~~
23) Benzo(j)fluoranthene	24.50	252	935770	2491.38	ug/kg	100
24) Benzo[e]pyrene	25.55	252	6358	15.38	ug/kg	98
25) Benzo[a]pyrene	25.73	252	3099	7.53	ug/kg	97
26) Dibenz[a,h]anthracene	29.30	278	2935	7.37	ug/kg	92
27) Indeno[1,2,3-cd]pyrene	29.32	276	3735	7.90	ug/kg	98
28) Benzo[g,h,i]perylene	30.38	276	2800	7.07	ug/kg	96

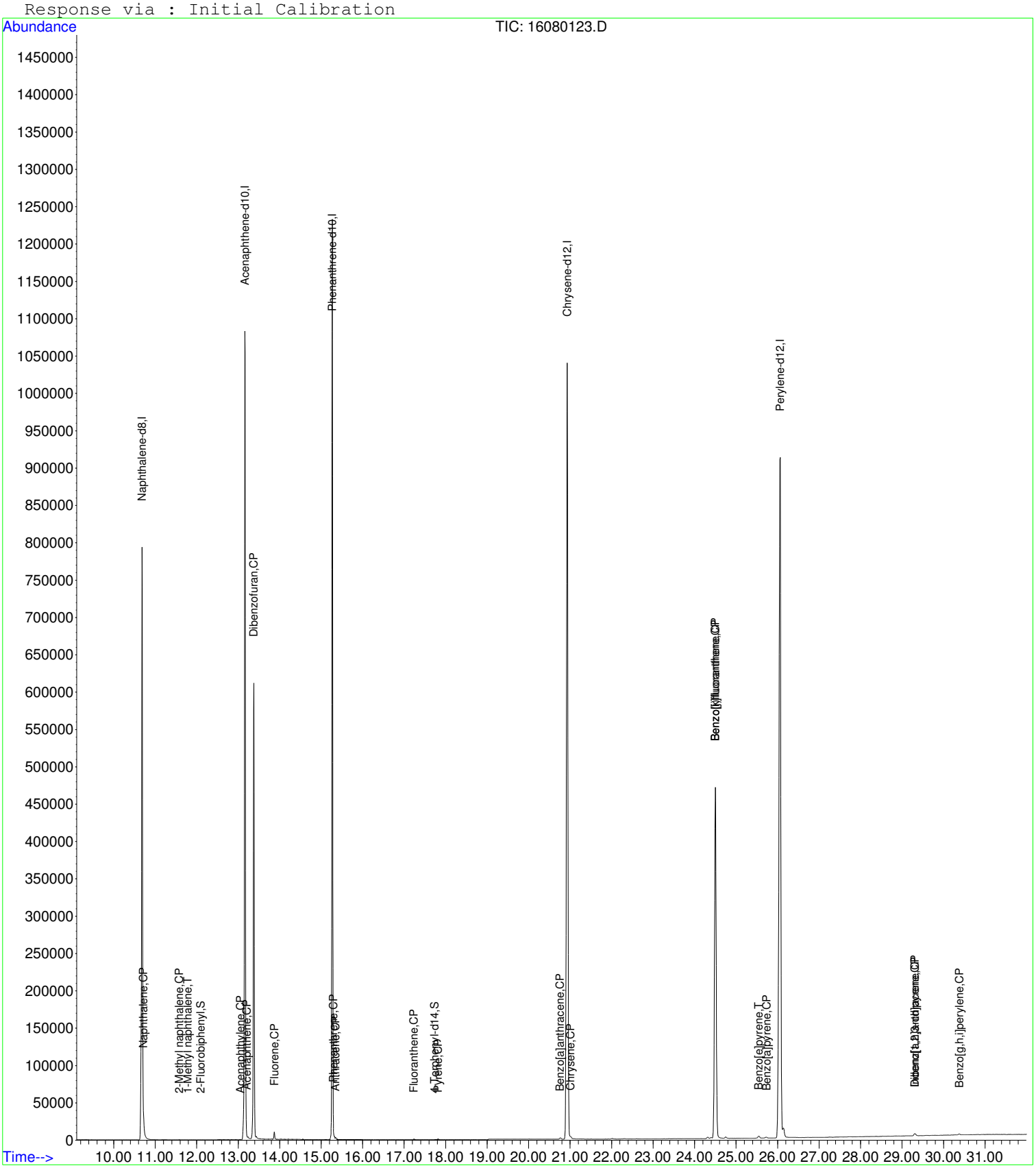
REVIEWED/APPROVED
By Sherri Herschmann at 9:39:32 AM, 8/10/2016

(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160801\16080123.D Vial: 11
Acq On : 2 Aug 2016 1:09 am Operator: DEW
Sample : SSCV (2500 ppb) Inst : GC/MS #6
Misc : ICV Multiplr: 5.00
MS Integration Params: RTEINT.P
Quant Time: Aug 2 9:44 2016 Quant Results File: PP160801.RES

Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\160801\16080124.D Vial: 12
Acq On : 2 Aug 2016 1:49 am Operator: DEW
Sample : SSCV (2500 ppb) Inst : GC/MS #6
Misc : ICV Multiplr: 5.00
MS Integration Params: RTEINT.P
Quant Time: Aug 2 9:44 2016 Quant Results File: PP160801.RES

Quant Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration
DataAcq Meth : PP160725

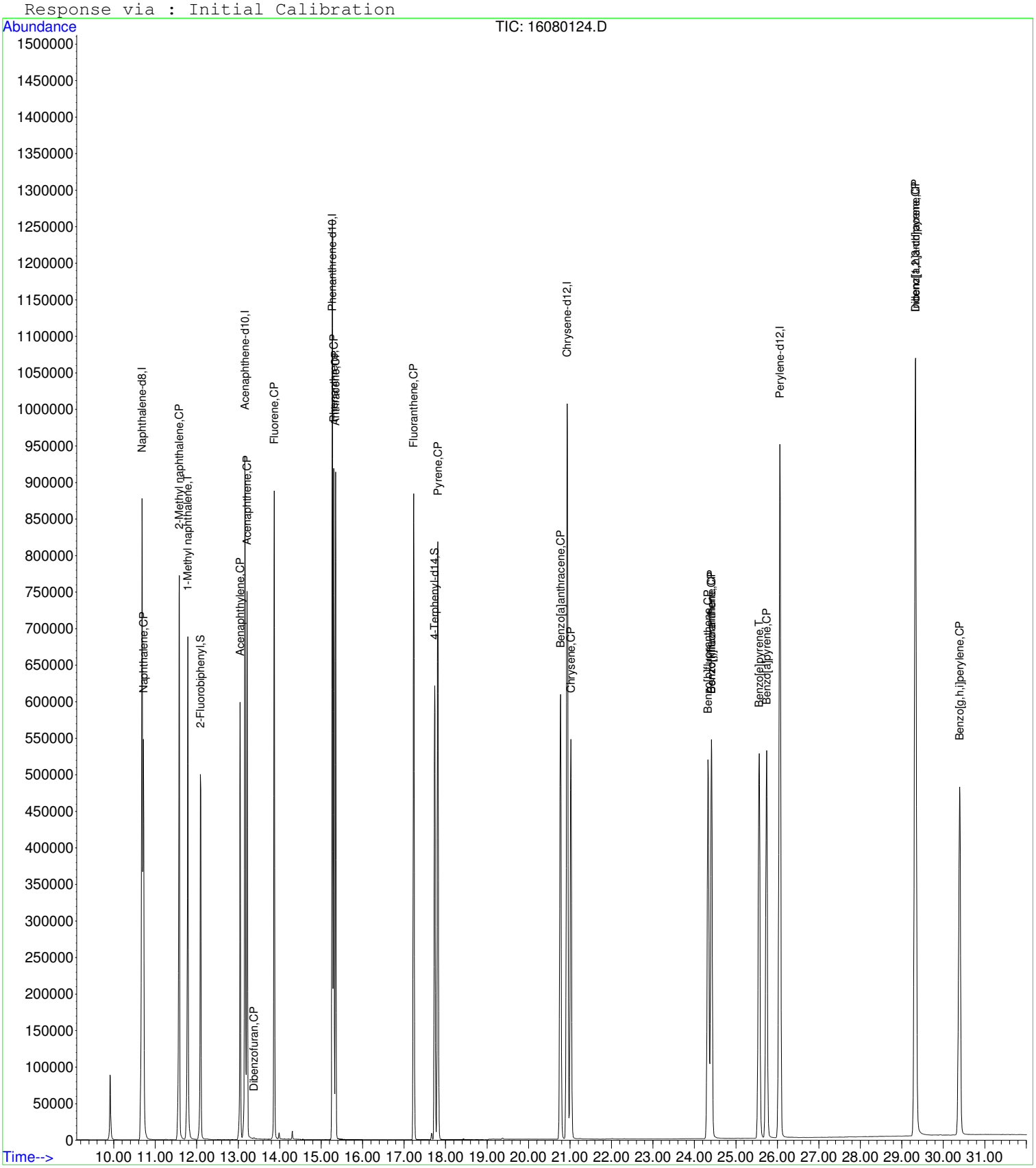
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Naphthalene-d8	10.68	136	1382829	4000.00	ug/kg	99
5) Acenaphthene-d10	13.16	164	584199	4000.00	ug/kg	97
11) Phenanthrene-d10	15.27	188	1507995	4000.00	ug/kg	95
17) Chrysene-d12	20.93	240	1806763	4000.00	ug/kg	99
20) Perylene-d12	26.06	264	1922214	4000.00	ug/kg	100
System Monitoring Compounds						
7) 2-Fluorobiphenyl	12.09	172	535064	2625.74	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	65.64%		
16) 4-Terphenyl-d14	17.74	244	917932	2579.40	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	64.48%		
Target Compounds						Qvalue
2) Naphthalene	10.72	128	729433	2318.41	ug/kg	100
3) 2-Methyl naphthalene	11.58	142	557797	2734.76	ug/kg	100
4) 1-Methyl naphthalene	11.78	142	488333	2702.95	ug/kg	99
6) Dibenzofuran	13.38	168	1665	7.04	ug/kg	92
8) Acenaphthylene	13.05	152	618455	2390.57	ug/kg	100
9) Acenaphthene	13.21	154	377577	2520.01	ug/kg	99
10) Fluorene	13.87	166	493842	2622.05	ug/kg	99
12) Phenanthrene	15.31	178	836523	2339.79	ug/kg	100
13) Anthracene	15.35	178	838710	2229.45	ug/kg	100
14) Fluoranthene	17.23	202	984348	2323.26	ug/kg	100
15) Pyrene	17.81	202	987430	2298.41	ug/kg	100
18) Benzo[a]anthracene	20.77	228	984666	2417.93	ug/kg	99
19) Chrysene	21.02	228	825681	2107.55	ug/kg	100
21) Benzo[b]fluoranthene	24.33	252	1115953	2514.81	ug/kg	100
22) Benzo[k]fluoranthene	24.41	252	1060340	2604.62	ug/kg	100
23) Benzo(j)fluoranthene	24.41	252	1065428	2723.30	ug/kg	96
24) Benzo[e]pyrene	25.56	252	1115693	2590.81	ug/kg	99
25) Benzo[a]pyrene	25.74	252	1079860	2518.56	ug/kg	100
26) Dibenz[a,h]anthracene	29.32	278	1039354	2504.99	ug/kg	98
27) Indeno[1,2,3-cd]pyrene	29.33	276	1238582	2515.56	ug/kg	99
28) Benzo[g,h,i]perylene	30.39	276	1033552	2506.28	ug/kg	99

(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\160801\16080124.D Vial: 12
Acq On : 2 Aug 2016 1:49 am Operator: DEW
Sample : SSCV (2500 ppb) Inst : GC/MS #6
Misc : ICV Multiplr: 5.00
MS Integration Params: RTEINT.P
Quant Time: Aug 2 9:44 2016 Quant Results File: PP160801.RES

Method : C:\HPCHEM\1\METHODS\PP160801.M (RTE Integrator)
Title : PAH Calibration
Last Update : Tue Aug 02 08:43:32 2016
Response via : Initial Calibration



GCMS8
For

DHL Work Order
1607317

GCMS8_160803B
For

DHL Work Order
1607317

Lab Data Review Check List
EPA Method 8270 / 625 - PAH: Polynuclear Aromatic Hydrocarbons

SEE RUN LOG FOR ALL PROJECT AND BATCH NUMBERS AND MATRICES	Run ID: GCMS8_160803B
Batch Number(s): See Run Log. Matrix: See Run Log.	SOP: ORGANICS-PAH-01

Review Item	Yes	No	N/A	2nd Level Review
Data Folder Contents 1. Is the Prep Batch Report included? Check and record the following: ***Prep Start/End Dates, Sample Amounts, Bottle #s***	X			X
2. Are the reagents and spikes listed on the Prep Batch Report current with a valid expiration date? ***All standard/QC sample preparations shall be documented in LIMS***	X			
3. Is the Run Log and instrument sequence included? ***Check the Test Code, Sample Type, Batch ID, and Analysis Date/Time***	X			
4. Is the System Verification - Tune Report included? ***Date/Tme of Tune starts 12-hour analysis window***	X			
5. Is the Evaluate Continuing Calibration Report included?	X			

Daily Demonstration of Performance

QC items that do not meet method/SOP/project requirements will be described on the run log. All variances that impact data quality will be described in the Variance/Comment Section on page 2.

Review Item	Frequency	Limits	Pass	Fail (List Batch/Sample) **See Run Log**	2nd Level Review
Tune	Before ICAL Every 12 hours	See Tune Eval Report	X		X
Resolution Check - Benzo(b) and Benzo(k)phenanthrene	Before ICAL Every 12 hours	Benzo(b) and Benzo(k) Valley > 50%	X		
Initial Calibration Curve (ICAL) (minimum: 5 Standards)	Prior to samples and when ICV fails	Avg. RF - %RSD ≤ 15% Curve (COD) - R^2 ≥ 0.990	X		
SSCV - (Second Source)	After calibration (ICAL)	80-120%	X		
ICV - (Daily Initial Cal Verification)	Every 12 hours	ISTDs Area% (50-200%) Surrogates %R (See LIMS) Analytes %R (80-120%)	X		

Review Item	Frequency	Limits	Pass	Fail	N/A	Review
Method Blank (MB) System Blank (SYS Blank)	Every Batch (MB) Daily (SYS BL)	< MDL / <½ RL (DoD) or <1/10 the sample/reg limit	X			X
Lab Control Sample (LCS)	Every Batch	See LIMS	X			
Lab Control Sample Dup (LCSD)	Insufficient sample Sample Matrix	See LIMS			X	
LCSD - RPD	Every LCS/LCSD	≤ 30 (Aq/Soil/DoD)			X	
Field Samples	Up to 20 per prep batch	ISTDs Area% (50-200%) Surrogates %R (See LIMS) RRT ± 0.06 RRT Standard Q value > 70 - check for #		X		
Matrix Spike (MS)	Every Batch/20 samples	See LIMS			X	
Matrix Spike Duplicate (MSD) (MSD is N/A for Method 625)	Every Prep Batch except Method 625	See LIMS			X	
MSD - RPD (MSD is N/A for Method 625)	Every MS/MSD except Method 625	≤ 30 (Aq/Soil/DoD)			X	

Lab Data Review Check List
EPA Method 8270 / 625 - PAH: Polynuclear Aromatic Hydrocarbons

Review Item	Criteria	Yes	No	N/A	2nd Level Review
Sample Analysis 1. Are all sample hold times met?	7 days (Aq) - extraction	X			X
	14 days (Soil) - extraction			X	
	40 days analysis	X			
2. Are all manual integrations signed (Before & After) and printouts included ? Put in LIMS Comment Section ***Include MI form for DoD work***	Before & After - signed Comment Section in LIMS MI Form - DoD only			X	
3. Are all samples with concentrations > the highest standard used for calibration diluted and reanalyzed?	> highest standard			X	
Review Item #3 is N/A ONLY if all sample results are within Calibration range or NO if dilution is in different folder					
4. Is mass spectra reviewed/verified if Q value is <70 and/or # flag for results >MDL?	Q value <70 - All hits	X			X
5. Are ALL reported analytes > MDL (+ J flags) circled by the analyst?		X	**Return to analyst if NO**		
VARIANCE REPORT					
QC items that do not meet method/SOP/project requirements will be described on the run log. All variances that impact data quality will be described in this section.					
NON-CONFORMANCES / VARIANCE 1. Are all non-conformances included and noted?	All deviations from the method and SOP that affect data quality	X			X
2. Are all corrective actions included?			X		
3. Does the variance require approval by the Technical Director/General Manager/QA Manager?		X			

Approved by: Date:

Description and Corrective Actions of QC items that do not meet method/SOP/project requirements:

****INCLUDE VARIANCE ITEM / REASON / CORRECTIVE ACTION / IMPACT ON DATA****

VARIANCE ITEM	REASON	CORRECTIVE ACTION
___ Hold Time exceeded (7D/14D-Ext/40D-Analysis)	___ Sample Received out of HT	___ Reanalyze QC to confirm
___ ICV out of control (±20%)	___ Carryover from previous run	___ Recalibrate
___ MB/SYS BL out of control (> MDL / >½ RL)	___ Cross contamination	___ Reprep/Reanalyze sample
___ LCS __LCSD out of control (See LIMS)	___ Lab Artifact	___ Reprep/Reanalyze Batch
___ RPD out of control for LCS/LCSD (>30)	___ Prep Spike error (describe)	___ Reanalyze Batch/Sample/QC
___ MS ___ MSD out of control (See LIMS)	___ High Levels of target analytes	___ Verify H2O/reagents are clean
___ RPD out of control for MS/MSD (>30)	___ High Levels of non-targets	___ Reanalyze sample to confirm
___ Internal Standard(s) out of control	___ Insufficient sample for QC	___ Sample results ND w/ dilution
___ Multiple Surrogates out of control	___ Prep Error	___ Client notified and approved
___ No MS/MSD prepared - LCS/LCSD used instead	___ Analytical Error	X Flag data / Case narrative
___ Missing QC (other than MS/MSD)	___ Client Request	___ Instrument Maintenance
___ QC sample(s) was mis-spiked	___ Other (describe below)	___ Accept data
X Other (describe below)		___ Cannot reanalyze (HT out/Lack of Sample)

General Comments and Impact on Data: **See Run Log.**

One surrogate low - see run log. The other surrogate is passing. Sample is past hold time - no corrective action taken.

Analyst: Karyn Lane Date: 8/4/2016

Second-Level Review: Date: REVIEWED/APPROVED By Sherri Herschmann at 11:20:53 AM, 8/10/2016 08/10/2016

DHL Analytical, Inc.

Run ID: GCMS8_160803B **Run No.:** 87401

Analytical Run Date: 8/3/2016 **InstrumentID:** GCMS8

Analyst: Karyn Lane **Column:** Rtx-5Sil MS (30m x 0.25mm ID x 0.5µm df)

Calibration ID: 681 **Column ID:** 0.18mm

Column Length: 20m

Cal Comments: PAH160802.M

SampID	DF	TestCode	SampType	Batch ID	Analysis Date/Time	Q	Comments
DFTPP-160803	1	PAH_LL_WDOD1	TUNE	R87401	8/3/2016 8:30:00 AM		
ICV-160803	1	PAH_LL_WDOD1	ICV	R87401	8/3/2016 9:09:00 AM		
LCS-76564	1	PAH_LL_WDOD1	LCS	76564	8/3/2016 9:49:00 AM		Equipment blanks - LCS and MB only required.
MB-76564	1	PAH_LL_WDOD1	MBLK	76564	8/3/2016 11:08:00 AM		
1607294-13B	1	PAH_LL_WDOD1	SAMP	76564	8/3/2016 1:47:00 PM		Surrogate 4-Terphenyl-d14 low - confirmed by reanalysis.
1607294-24B	1	PAH_LL_WDOD1	SAMP	76564	8/3/2016 3:07:00 PM		
1607294-37B	1	PAH_LL_WDOD1	SAMP	76564	8/3/2016 3:47:00 PM		
1607294-50B	1	PAH_LL_WDOD1	SAMP	76564	8/3/2016 4:27:00 PM		
1607294-63B	1	PAH_LL_WDOD1	SAMP	76564	8/3/2016 5:07:00 PM		
1607294-76B	1	PAH_LL_WDOD1	SAMP	76564	8/3/2016 5:47:00 PM		
1607314-07B	1	PAH_LL_WDOD1	SAMP	76564	8/3/2016 6:27:00 PM		
1607317-13B	1	PAH_LL_WDOD1	SAMP	76564	8/3/2016 7:06:00 PM		
DFTPP2-160803	1	PAH_LL_WDOD1	TUNE	R87401	8/3/2016 7:48:00 PM		
ICV2-160803	1	PAH_LL_WDOD1	ICV	R87401	8/3/2016 8:27:00 PM		
SBLK-160803	1	PAH_LL_WDOD1	SBLK	76564	8/3/2016 9:47:00 PM		
1607317-26B	1	PAH_LL_WDOD1	SAMP	76564	8/3/2016 10:26:00 PM		
1607317-39B	1	PAH_LL_WDOD1	SAMP	76564	8/3/2016 11:06:00 PM		
1607337-13B	1	PAH_LL_WDOD1	SAMP	76564	8/3/2016 11:46:00 PM		
1607337-26B	1	PAH_LL_WDOD1	SAMP	76564	8/4/2016 12:26:00 AM		
1607294-13B	1	PAH_LL_WDOD1	SAMP	76564	8/4/2016 1:06:00 AM		DNR - for confirmation only.
CCV-160803	1	PAH_LL_WDOD1	CCV	R87401	8/4/2016 1:45:00 AM		

Std ID	Std Name	Type	Exp. Date
DFTPP160509	2.5 PPM 525 TUNE STD.	TUNE	05/07/2017
PAHICV160802	2 PPM PAH ICV	ICV	01/31/2017
SVI160510-3	4000 PPM INTERNAL STANDAR	ALL	07/30/2017

REVIEWED/APPROVED

By Sherri Herschmann at 11:21:45 AM, 8/10/2016

Sequence Name: C:\msdchem\1\sequence\160803.S
Comment:
Operator:
Data Path: C:\MSDCHEM\1\DATA\160803\
Instrument Name: GCMS #8
Instrument Control Pre-Seq Cmd:
Data Analysis Pre-Seq Cmd:

Instrument Control Post-Seq Cmd:
Data Analysis Post-Seq Cmd:

Method Sections To Run
(X) Full Method
( ) Reprocessing Only

On A Barcode Mismatch
(X) Inject Anyway
( ) Don't Inject

Line		Sample Name/Misc Info		
1)	Sample	1	16080301 DFTPPPAH	DFTPP-160803
2)	Sample	2	16080302 PAH160802	ICV-160803
3)	Sample	3	16080303 PAH160802	LCS-76564
4)	Sample	4	16080304 PAH160802	LCSD-76563
5)	Sample	5	16080305 PAH160802	MB-76564
6)	Sample	6	16080306 PAH160802	DCS-76288
7)	Sample	7	16080307 PAH160802	LQV1-73288
8)	Sample	8	16080308 PAH160802	1607303-11C
9)	Sample	9	16080309 PAH160802	1607294-13B
10)	Sample	10	16080310 PAH160802	1607303-11C
11)	Sample	11	16080311 PAH160802	1607294-24B
12)	Sample	12	16080312 PAH160802	1607294-37B
13)	Sample	13	16080313 PAH160802	1607294-50B
14)	Sample	14	16080314 PAH160802	1607294-63B
15)	Sample	15	16080315 PAH160802	1607294-76B
16)	Sample	16	16080316 PAH160802	1607314-07B
17)	Sample	17	16080317 PAH160802	1607317-13B
18)	Sample	18	16080318 DFTPPPAH	DFTPP2-160803
19)	Sample	19	16080319 PAH160802	ICV2-160803
20)	Sample	20	16080320 PAH160802	SBLK
21)	Sample	21	16080321 PAH160802	SBLK-160803
22)	Sample	22	16080322 PAH160802	1607317-26B
23)	Sample	23	16080323 PAH160802	1607317-39B
24)	Sample	24	16080324 PAH160802	1607337-13B
25)	Sample	25	16080325 PAH160802	1607337-26B
26)	Sample	26	16080326 PAH160802	1607294-13B
27)	Sample	27	16080327 PAH160802	CCV-160803

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **7/29/2016 10:26:10 AM**
Digestion:
Prep End Date: **7/29/2016 2:03:00 PM**

Prep Batch **76564** Prep Code: **3510_PAHDOD** Technician: **Lauren Garcia**

Prep Factor Units: **mL/mL**

Equipment List

Turbo-Vap #1,2,3
Balance # 25, 29

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607294-13B	Equip Blank	6	254.9	1	0.004	1 of 1	
1607294-24B	Equip Blank	6	252.3	1	0.004	1 of 1	
1607294-37B	Equip Blank	6	251.6	1	0.004	1 of 1	
1607294-50B	Equip Blank	6	251.4	1	0.004	1 of 1	
1607294-63B	Equip Blank	6	253.9	1	0.004	1 of 1	
1607294-76B	Equip Blank	6	251	1	0.004	1 of 1	
1607314-07B	Equip Blank	6	253.4	1	0.004	1 of 1	
1607317-13B	Equip Blank	6	251.1	1	0.004	1 of 1	
1607317-26B	Equip Blank	6	250.8	1	0.004	1 of 1	
1607317-39B	Equip Blank	6	254.2	1	0.004	1 of 1	
1607337-13B	Aqueous	6	252.9	1	0.004	1 of 1	
1607337-26B	Aqueous	6	252.3	1	0.004	1 of 1	
LCS-76564	Aqueous	6	500	1	0.002	of	
MB-76564	Aqueous	6	500	1	0.002	of	

Number	Reagent Name	Amt	Units	Exp. Da
7509	pH paper 0-14	1	paper	10/15/2025
10394	Purified Sodium Sulfate	10	g	05/23/2026
10419	Methylene Chloride	120	ml	05/31/2026
10535	Whatman 41 Filter	1	filter	07/08/2026

Spk ID	Spike Name	SampType	Amt (mL or g)	Exp. Date
PAHPREP160727	200 PPM PAH Spike Mix	LCS	0.01	10/25/2016
SVPREP160727	40 PPM Surrogate Standard	ALL	0.1	10/25/2016

REVIEWED/APPROVED
By Sherri Herschmann at 11:21:52 AM, 8/10/2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **7/29/2016 10:26:10 AM**
Digestion:
Prep End Date: 7/29/16 2:03 PM

Prep Batch **76564** Prep Code: **3510_PAHDOD** Technician: **Lauren Garcia**

Prep Factor Units: **mL/mL**

Equipment List
Turbo-Vap #1,2,3
Balance # 25, 29

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607294-13B	Equip Blank	6	500	1	0.002	1 of 1	794.2 - 539.3 = 254.9
1607294-24B	Equip Blank		500	1	0.002	1 of 1	775.4 - 523.1 = 252.3
1607294-37B	Equip Blank		500	1	0.002	1 of 1	788.9 - 537.3 = 251.6
1607294-50B	Equip Blank		500	1	0.002	1 of 1	775.7 - 524.3 = 251.4
1607294-63B	Equip Blank		500	1	0.002	1 of 1	781.2 - 527.7 = 253.9
1607294-76B	Equip Blank		500	1	0.002	1 of 1	780.4 - 529.4 = 251.0
1607314-07B	Equip Blank		500	1	0.002	1 of 1	~~773.2 - ~~ 7/29/16 773.9 - 520.5 = 253.4
1607317-13B	Equip Blank		500	1	0.002	1 of 1	772.7 - 521.1 = 251.1
1607317-26B	Equip Blank		500	1	0.002	1 of 1	765.7 - 514.9 = 250.8
1607317-39B	Equip Blank		500	1	0.002	1 of 1	771.3 - 517.1 = 254.2
LCS-76564	Aqueous	6	500	1	0.002	of	
MB-76564	Aqueous	6	500	1	0.002	of	

1607337-13B
337-26B

764.1 - 511.2 = 252.9
781.9 - 529.6 = 252.3

REVIEWED/APPROVED
By Sherri Herschmann at 11:24:24 AM, 8/10/2016

Number	Reagent Name	Amt	Units	Exp. D
7509	pH paper 0-14	1	paper	10/15/2025
10394	Purified Sodium Sulfate	10	g	05/23/2026
10419	Methylene Chloride	120	ml	05/31/2026
10535	Whatman 41 Filter	1	filter	07/08/2026

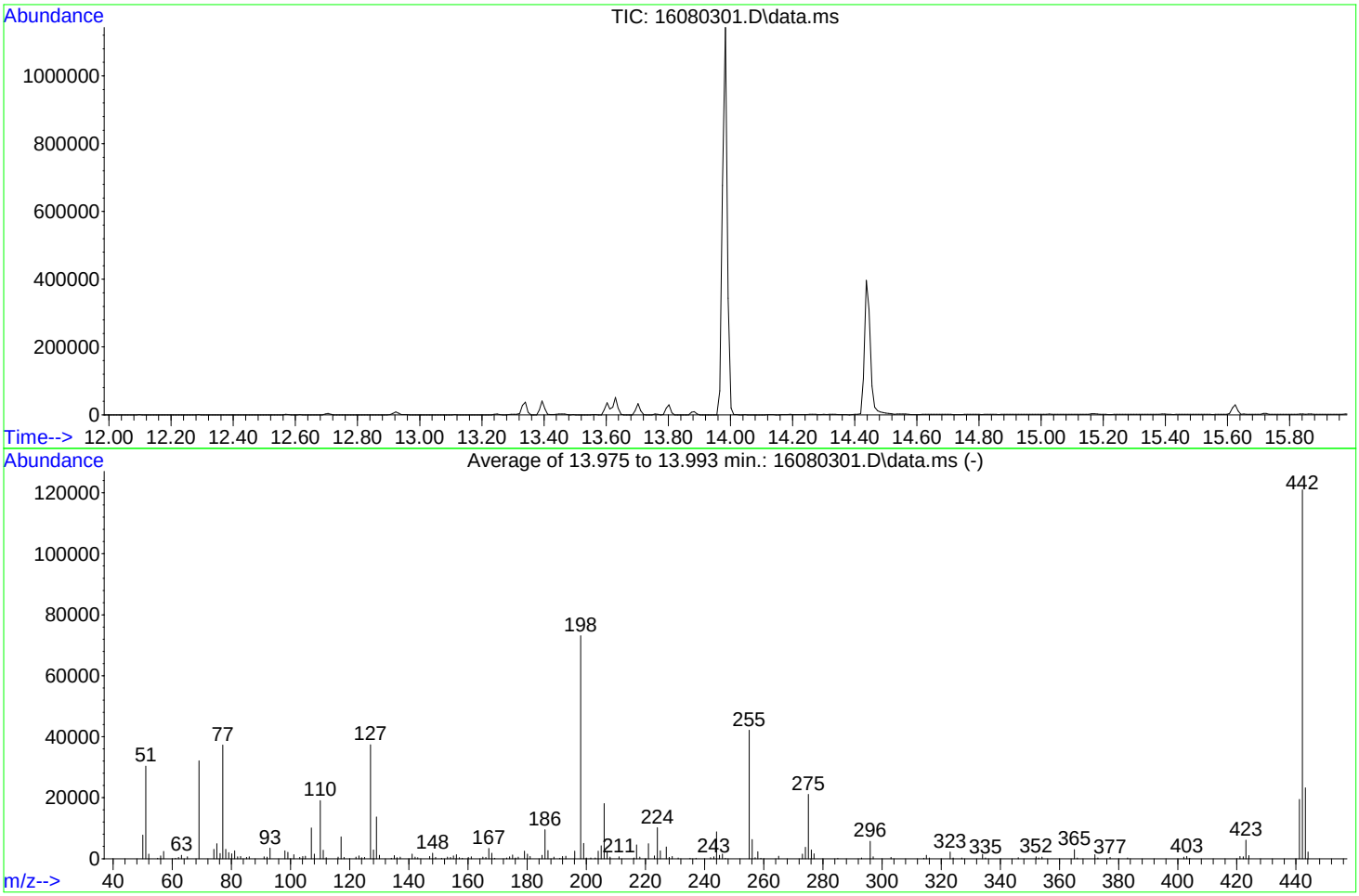
Spk ID	Spike Name	SampType	Amt (mL or g)	Exp. Date
PAHPREP160727	200 PPM PAH Spike Mix	LCS	0.01	10/25/2016
SVPREP160727	40 PPM Surrogate Standard	ALL	0.1	10/25/2016

7/29/16 7/29/16 7/29/16

Data Path : C:\msdchem\1\DATA\160803\
Data File : 16080301.D
Acq On : 3 Aug 2016 8:30 am
Operator :
Sample : DFTPP-160803
Misc : TUNE
ALS Vial : 1 Sample Multiplier: 1

Integration File: RTEINT.P

Method : C:\msdchem\1\METHODS\DFTPPPAH.M
Title : CLP BNA Calibration - Large Volume Injection
Last Update : Thu Aug 27 07:24:43 2015



AutoFind: Scans 429, 430, 431; Background Corrected with Scan 425

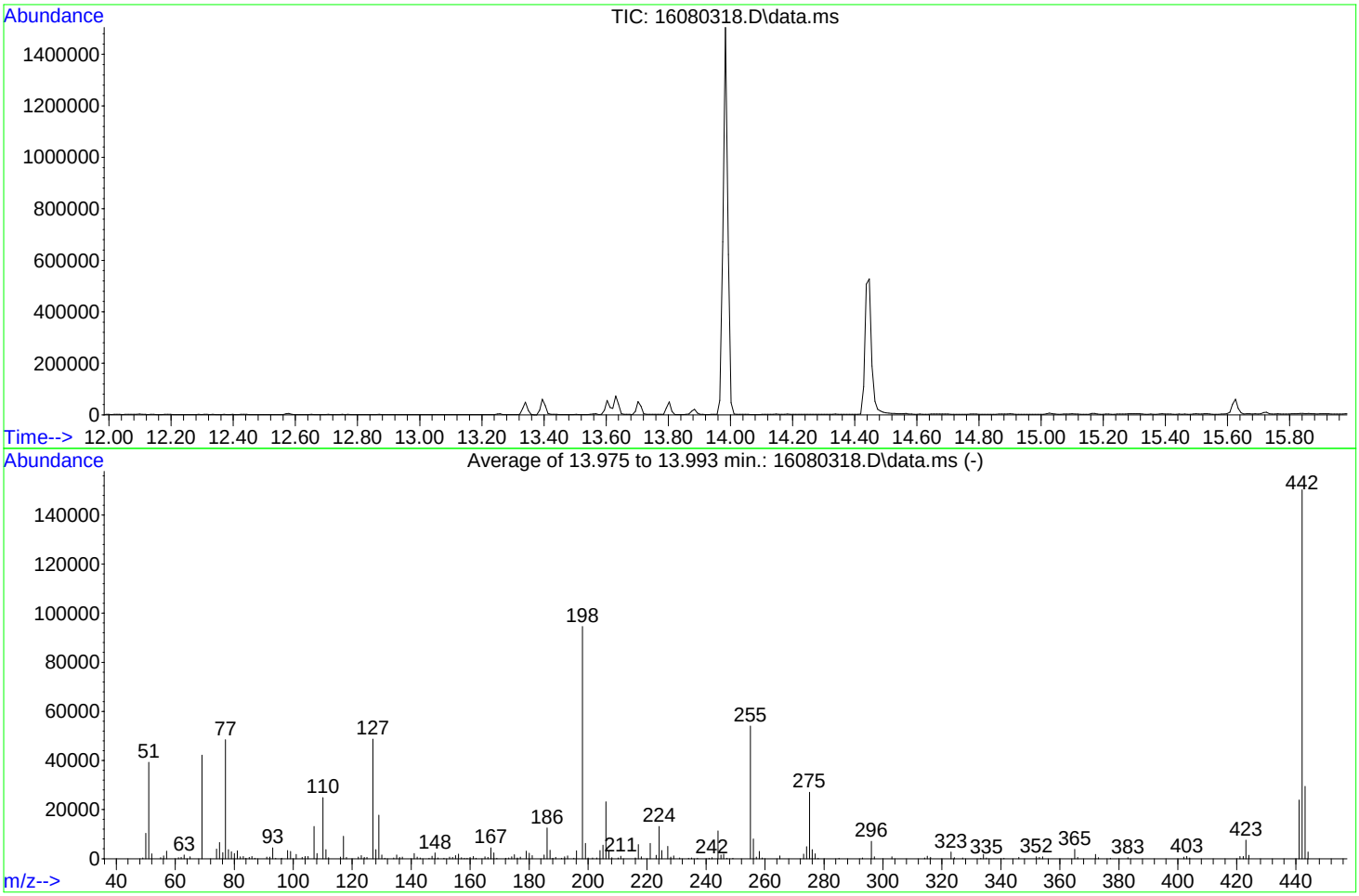
Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	10	80	41.5	30395	PASS
68	69	0.00	2	0.0	0	PASS
69	198	0.00	100	43.9	32151	PASS
70	69	0.00	2	0.0	0	PASS
127	198	10	80	51.1	37380	PASS
197	198	0.00	2	0.0	0	PASS
198	198	100	100	100.0	73176	PASS
199	198	5	9	6.9	5031	PASS
275	198	10	60	28.8	21092	PASS
365	198	1	200	4.1	3004	PASS
441	442	0.01	24	16.1	19486	PASS
442	198	50	400	165.4	121034	PASS
443	442	15	24	19.2	23240	PASS

REVIEWED/APPROVED
By Sherri Herschmann at 9:49:02 AM, 8/4/2016

Data Path : C:\msdchem\1\DATA\160803\
Data File : 16080318.D
Acq On : 3 Aug 2016 7:48 pm
Operator :
Sample : DFTPP2-160803
Misc : TUNE
ALS Vial : 18 Sample Multiplier: 1

Integration File: RTEINT.P

Method : C:\msdchem\1\METHODS\DFTPPPAH.M
Title : CLP BNA Calibration - Large Volume Injection
Last Update : Thu Aug 27 07:24:43 2015



AutoFind: Scans 429, 430, 431; Background Corrected with Scan 425

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	10	80	41.5	39277	PASS
68	69	0.00	2	0.0	0	PASS
69	198	0.00	100	44.5	42136	PASS
70	69	0.00	2	0.0	0	PASS
127	198	10	80	51.5	48754	PASS
197	198	0.00	2	0.0	0	PASS
198	198	100	100	100.0	94600	PASS
199	198	5	9	6.7	6295	PASS
275	198	10	60	28.6	27089	PASS
365	198	1	200	4.0	3811	PASS
441	442	0.01	24	15.9	23947	PASS
442	198	50	400	158.9	150304	PASS
443	442	15	24	19.6	29507	PASS

REVIEWED/APPROVED
By Sherri Herschmann at 11:24:44 AM, 8/10/2016

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160803\
Data File : 16080302.D
Acq On : 3 Aug 2016 9:09 am
Operator :
Sample : ICV-160803
Misc : ICV
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Aug 03 16:06:53 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 10:10:50 2016
Response via : Initial Calibration

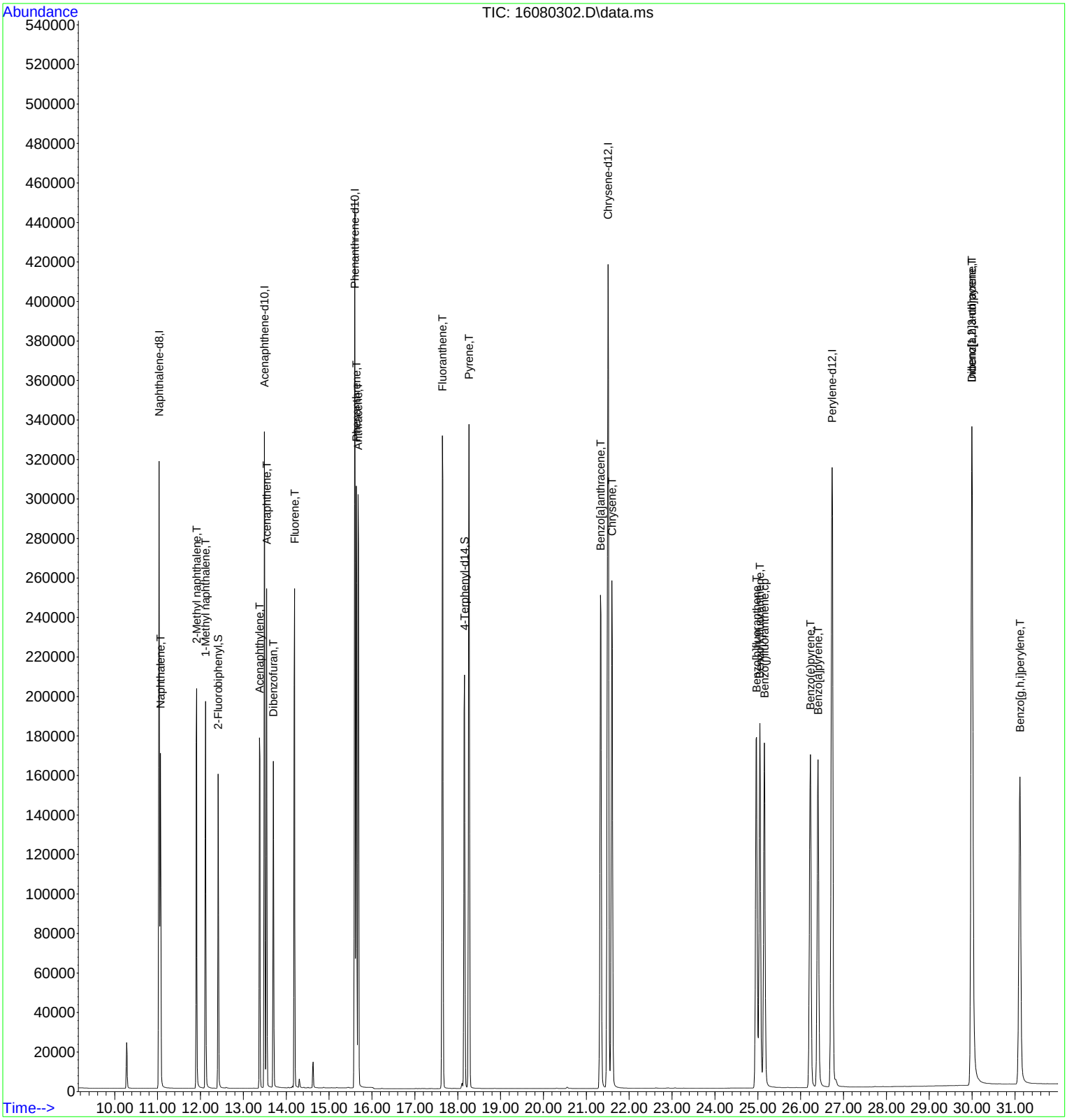
Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	11.033	136	390553	4000.00	ug/kg	100
6) Acenaphthene-d10	13.490	164	183562	4000.00	ug/kg	100
11) Phenanthrene-d10	15.600	188	509810	4000.00	ug/kg	102
17) Chrysene-d12	21.508	240	654325	4000.00	ug/kg	97
20) Perylene-d12	26.733	264	594983	4000.00	ug/kg	97
System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.413	172	125265	1934.07	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 48.35%			
15) 4-Terphenyl-d14	18.159	244	242415	1909.23	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery = 47.73%#			
Target Compounds						Qvalue
2) Naphthalene	11.068	128	178905	1883.99	ug/kg	100
3) 2-Methyl naphthalene	11.910	142	117561	1967.33	ug/kg	97
4) 1-Methyl naphthalene	12.118	142	107352	1956.46	ug/kg	98
7) Acenaphthylene	13.377	152	176868	2009.63	ug/kg	99
8) Acenaphthene	13.542	153	110322	1978.58	ug/kg	99
9) Dibenzofuran	13.698	168	155670	1970.36	ug/kg	71
10) Fluorene	14.193	166	134789	2021.51	ug/kg	99
12) Phenanthrene	15.634	178	262008	1900.99	ug/kg	99
13) Anthracene	15.678	178	269388	1910.93	ug/kg	99
14) Fluoranthene	17.643	202	358655	1939.37	ug/kg	100
16) Pyrene	18.263	202	364075	1896.47	ug/kg	100
18) Benzo[a]anthracene	21.331	228	350831	2067.91	ug/kg	100
19) Chrysene	21.597	228	328075	2026.60	ug/kg	100
21) Benzo[b]fluoranthene	24.970	252	336445	2095.75	ug/kg	99
22) Benzo[k]fluoranthene	25.051	252	296090	2155.96	ug/kg	99
23) Benzo(j)fluoranthene	25.155	252	281469	2098.35	ug/kg	100
24) Benzo(e)pyrene	26.226	252	313111	2015.57	ug/kg	100
25) Benzo[a]pyrene	26.403	252	307070	2082.90	ug/kg	99
26) Indeno[1,2,3-cd]pyrene	30.002	276	369754	2123.66	ug/kg	98
27) Dibenz[a,h]anthracene	29.994	278	306446	2140.51	ug/kg	99
28) Benzo[g,h,i]perylene	31.113	276	311193	2034.70	ug/kg	97

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160803\
Data File : 16080302.D
Acq On : 3 Aug 2016 9:09 am
Operator :
Sample : ICV-160803
Misc : ICV
ALS Vial : 2 Sample Multiplier: 1

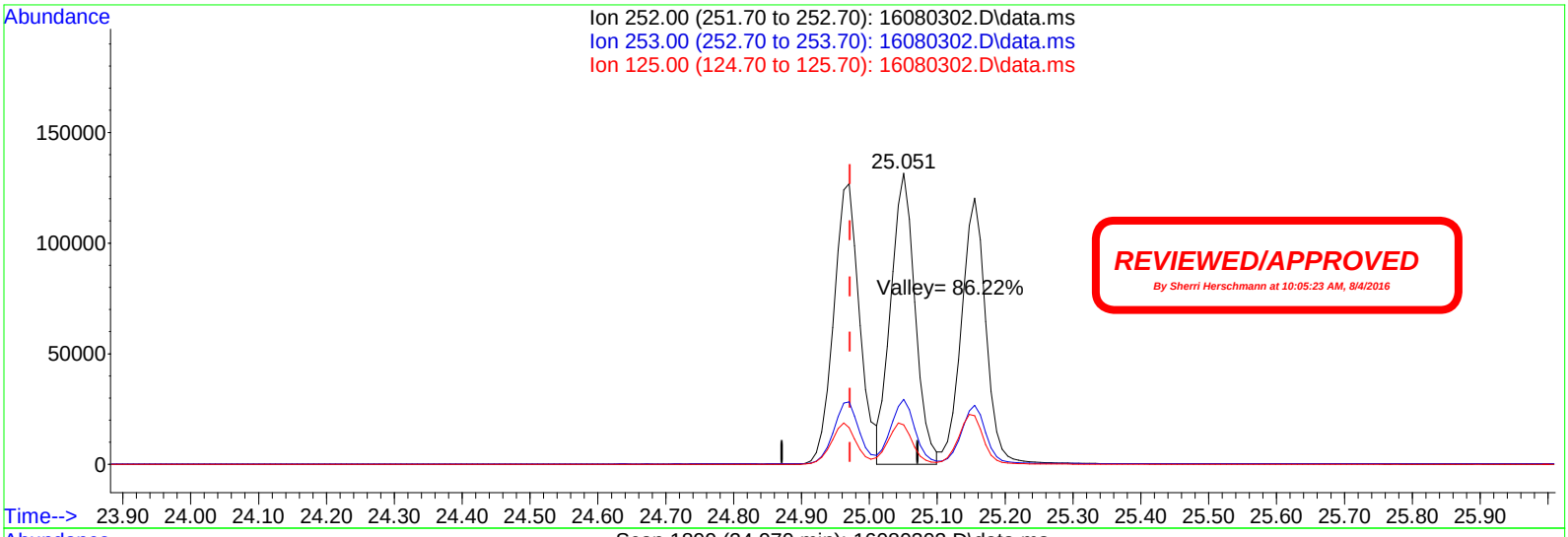
Quant Time: Aug 03 16:06:53 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 10:10:50 2016
Response via : Initial Calibration

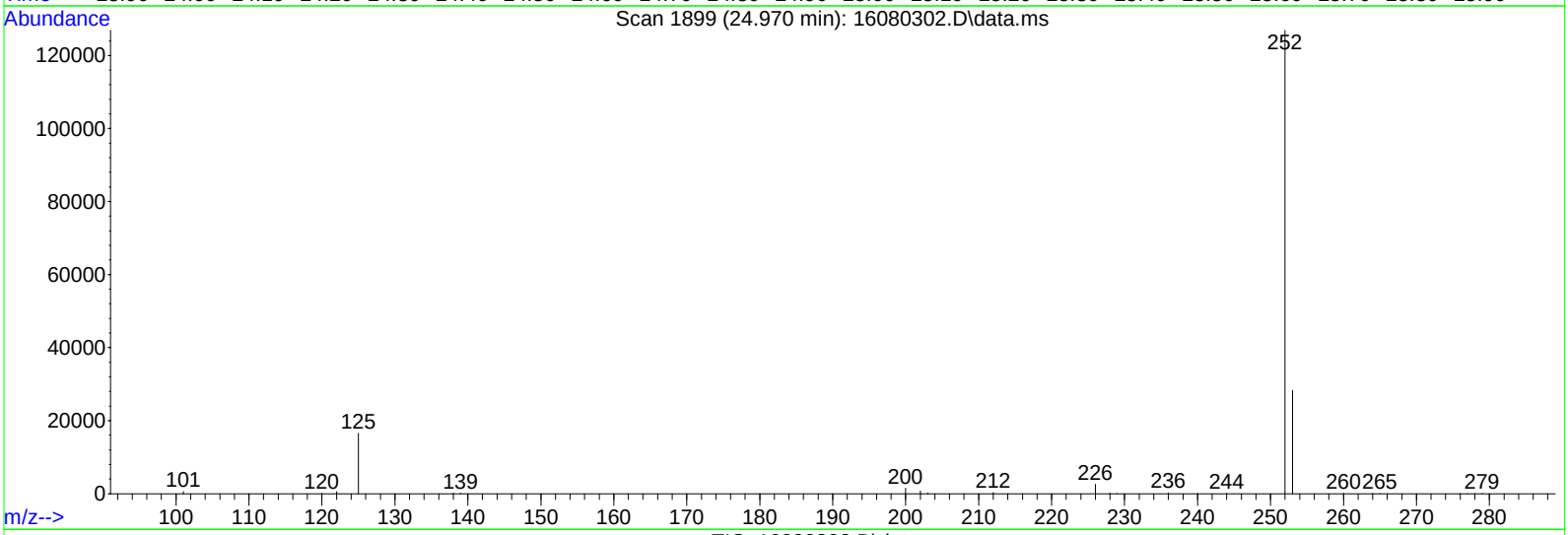


Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\160803\
Data File : 16080302.D
Acq On : 3 Aug 2016 9:09 am
Operator :
Sample : ICV-160803
Misc : ICV
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Aug 03 16:06:53 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 10:10:50 2016
Response via : Initial Calibration





TIC: 16080302.D\data.ms

(21) Benzo[b]fluoranthene (T)

24.970min (-0.001) 2095.75ug/kg

response 336445

Ion	Exp%	Act%
252.00	100	100
253.00	22.10	22.04
125.00	13.90	13.01
0.00	0.00	0.00

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160803\
Data File : 16080303.D
Acq On : 3 Aug 2016 9:49 am
Operator :
Sample : LCS-76564
Misc : LCS
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Aug 03 16:06:57 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 10:10:50 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	11.039	136	368907	4000.00	ug/kg	94
6) Acenaphthene-d10	13.496	164	180794	4000.00	ug/kg	99
11) Phenanthrene-d10	15.597	188	514572	4000.00	ug/kg	103
17) Chrysene-d12	21.508	240	620547	4000.00	ug/kg	92
20) Perylene-d12	26.733	264	566556	4000.00	ug/kg	92

System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.410	172	160816	2628.66	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 65.72%			
15) 4-Terphenyl-d14	18.158	244	323974	2527.96	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery = 63.20%			

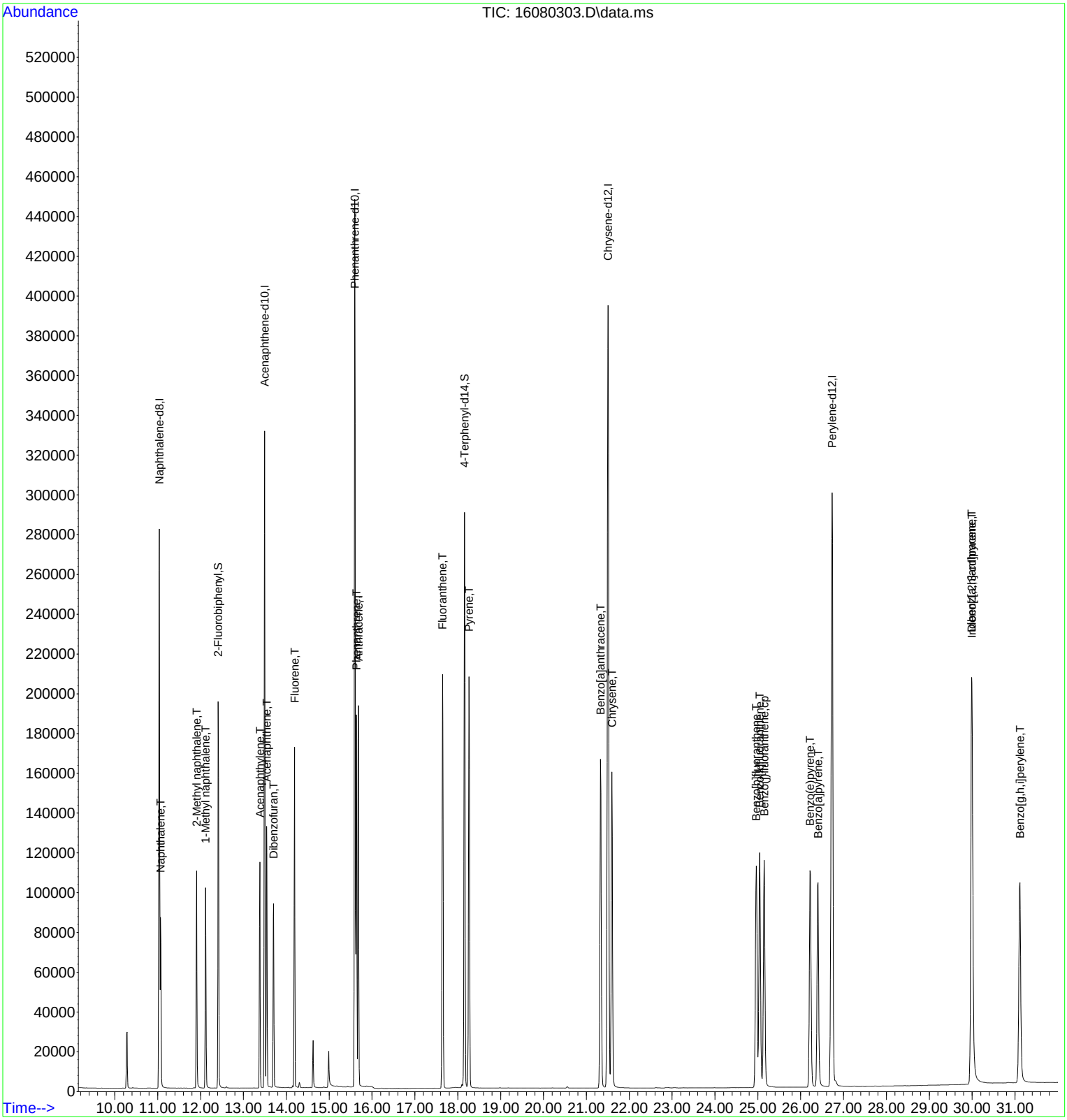
Target Compounds						Qvalue
2) Naphthalene	11.065	128	93399	1041.27	ug/kg	100
3) 2-Methyl naphthalene	11.907	142	59580	1055.55	ug/kg	100
4) 1-Methyl naphthalene	12.115	142	56031	1081.07	ug/kg	99
7) Acenaphthylene	13.383	152	103886	1198.46	ug/kg	100
8) Acenaphthene	13.539	153	63907	1163.69	ug/kg	100
9) Dibenzofuran	13.704	168	93926	1207.05	ug/kg	98
10) Fluorene	14.190	166	84248	1282.86	ug/kg	100
12) Phenanthrene	15.640	178	170562	1226.06	ug/kg	100
13) Anthracene	15.684	178	171191	1203.12	ug/kg	100
14) Fluoranthene	17.643	202	225310	1207.06	ug/kg	98
16) Pyrene	18.263	202	229843	1186.17	ug/kg	98
18) Benzo[a]anthracene	21.331	228	221604	1377.31	ug/kg	100
19) Chrysene	21.596	228	202551	1319.31	ug/kg	99
21) Benzo[b]fluoranthene	24.962	252	209253	1368.86	ug/kg	100
22) Benzo[k]fluoranthene	25.042	252	193018	1475.97	ug/kg	100
23) Benzo(j)fluoranthene	25.147	252	183085	1433.38	ug/kg	100
24) Benzo(e)pyrene	26.226	252	202065	1366.00	ug/kg	100
25) Benzo[a]pyrene	26.403	252	194973	1388.89	ug/kg	98
26) Indeno[1,2,3-cd]pyrene	30.002	276	235137	1418.25	ug/kg	93
27) Dibenz[a,h]anthracene	29.986	278	190770	1399.38	ug/kg	99
28) Benzo[g,h,i]perylene	31.113	276	198941	1366.02	ug/kg	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160803\
Data File : 16080303.D
Acq On : 3 Aug 2016 9:49 am
Operator :
Sample : LCS-76564
Misc : LCS
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Aug 03 16:06:57 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 10:10:50 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160803\
Data File : 16080305.D
Acq On : 3 Aug 2016 11:08 am
Operator :
Sample : MB-76564
Misc : MBLK
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Aug 03 16:07:03 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 10:10:50 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	11.039	136	371236	4000.00	ug/kg	95
6) Acenaphthene-d10	13.496	164	187440	4000.00	ug/kg	103
11) Phenanthrene-d10	15.597	188	516421	4000.00	ug/kg	103
17) Chrysene-d12	21.508	240	618317	4000.00	ug/kg	92
20) Perylene-d12	26.733	264	568486	4000.00	ug/kg	93

System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.411	172	176201	2862.07	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 71.55%			
15) 4-Terphenyl-d14	18.159	244	324574	2523.58	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery = 63.09%			

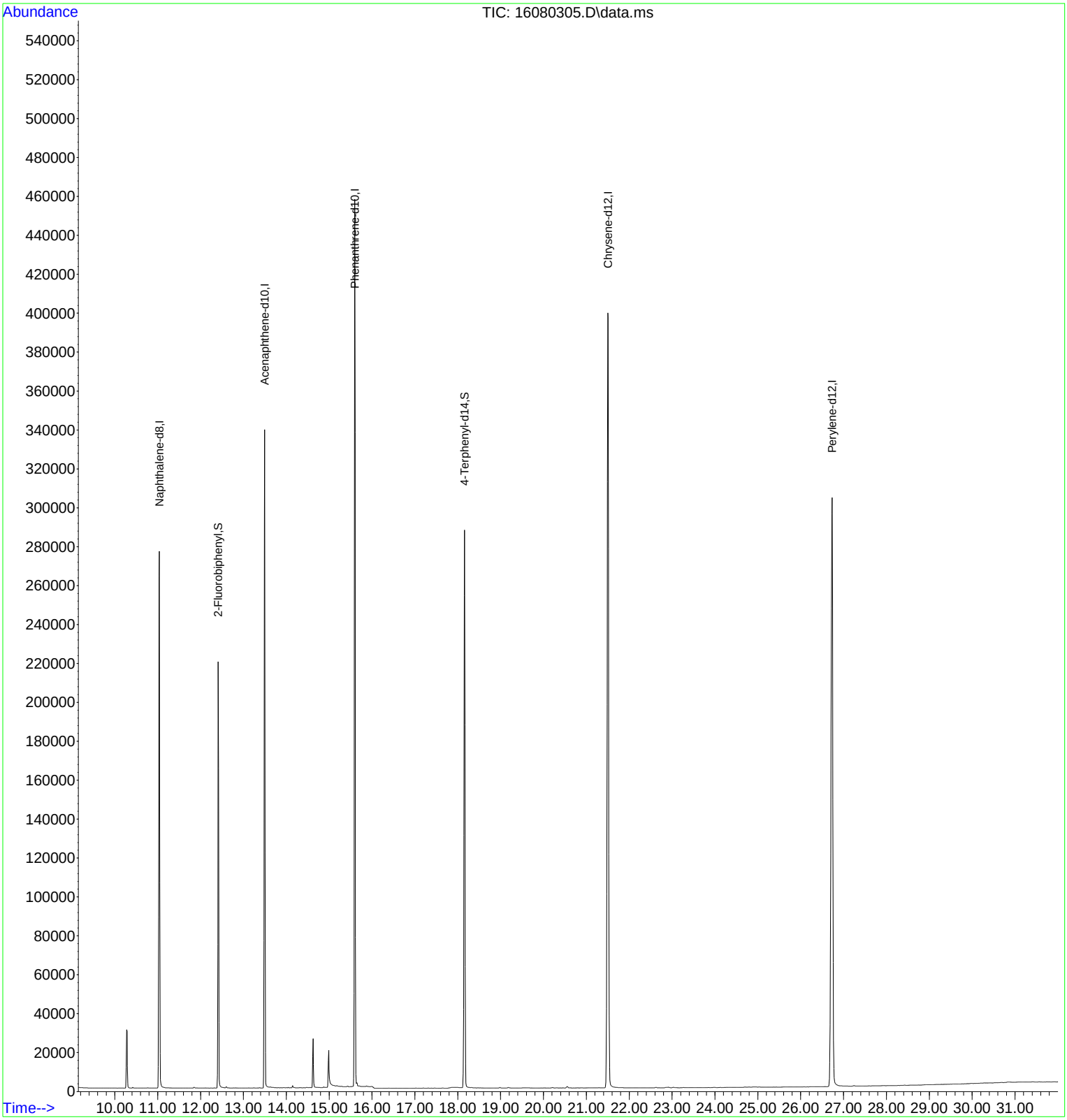
Target Compounds	Qvalue

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160803\
Data File : 16080305.D
Acq On : 3 Aug 2016 11:08 am
Operator :
Sample : MB-76564
Misc : MBLK
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Aug 03 16:07:03 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 10:10:50 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160803\
Data File : 16080317.D
Acq On : 3 Aug 2016 7:06 pm
Operator :
Sample : 1607317-13B
Misc : SAMP
ALS Vial : 17 Sample Multiplier: 1

Quant Time: Aug 04 09:01:06 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 16:07:35 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	11.039	136	335062	4000.00	ug/kg	85
6) Acenaphthene-d10	13.496	164	180426	4000.00	ug/kg	99
11) Phenanthrene-d10	15.606	188	514190	4000.00	ug/kg	103
17) Chrysene-d12	21.508	240	581579	4000.00	ug/kg	86
20) Perylene-d12	26.742	264	542049	4000.00	ug/kg	88

System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.420	172	172734	3108.67	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 77.72%			
15) 4-Terphenyl-d14	18.167	244	327008	2553.53	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery = 63.84%			

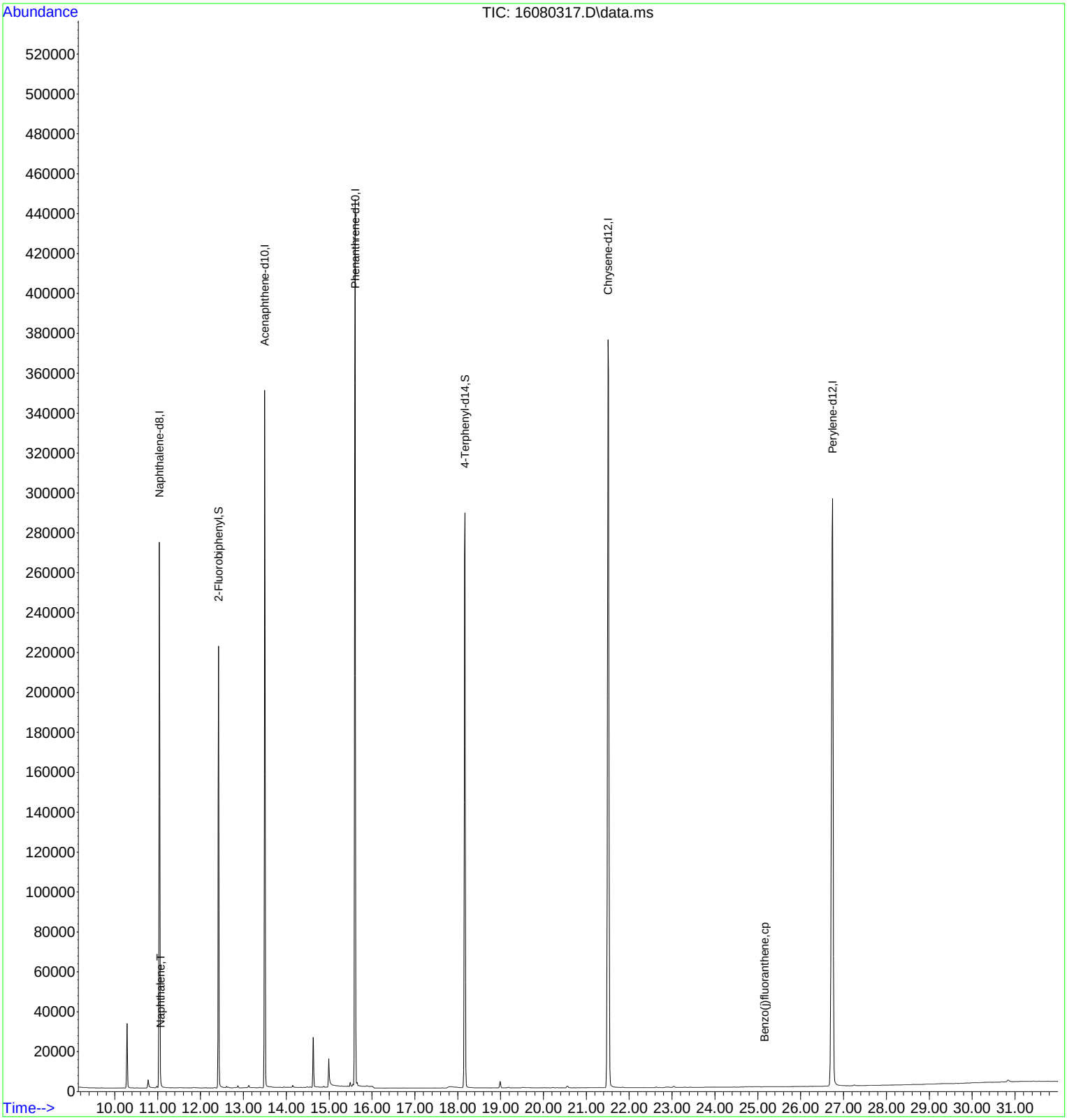
Target Compounds						Qvalue
2) Naphthalene	11.074	128	572	7.02	ug/kg	81
23) Benzo(j)fluoranthene	25.156	252	79	0.65	ug/kg	72

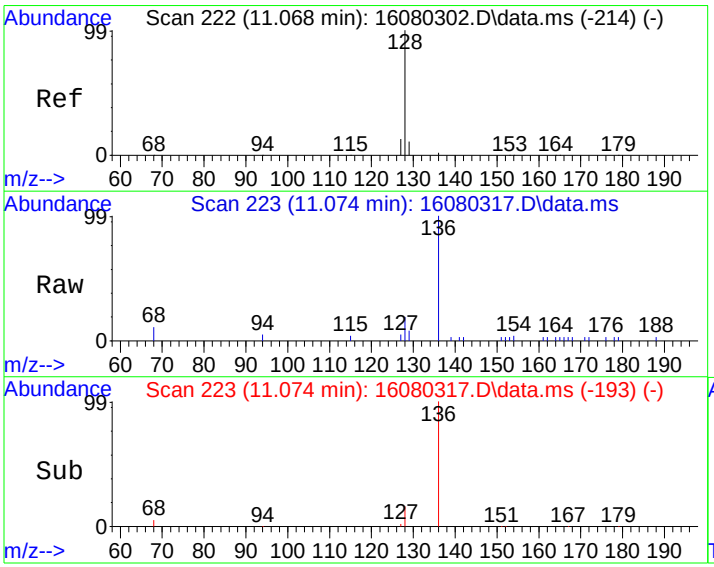
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160803\
Data File : 16080317.D
Acq On : 3 Aug 2016 7:06 pm
Operator :
Sample : 1607317-13B
Misc : SAMP
ALS Vial : 17 Sample Multiplier: 1

Quant Time: Aug 04 09:01:06 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 16:07:35 2016
Response via : Initial Calibration

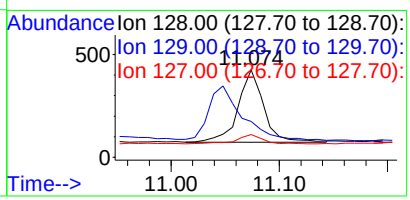


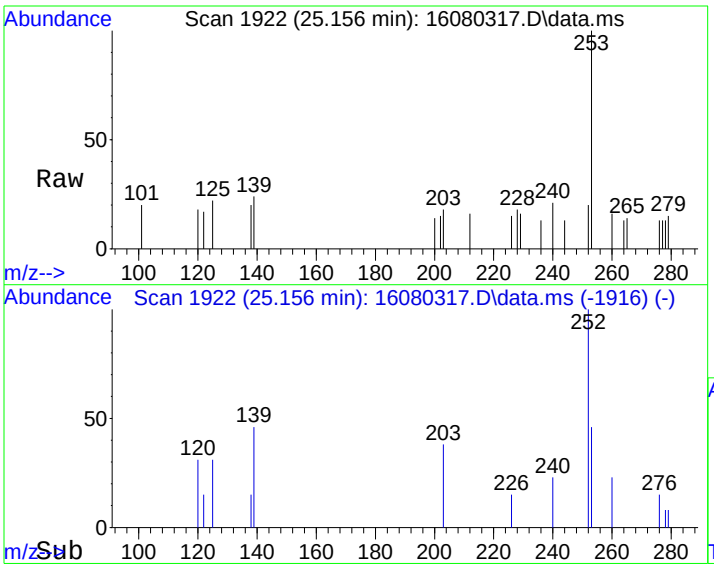


#2
Naphthalene
Concen: 7.02 ug/kg
RT: 11.074 min Scan# 223
Delta R.T. 0.007 min
Lab File: 16080317.D
Acq: 3 Aug 2016 7:06 pm

Tgt Ion:128 Resp: 572

Ion	Ratio	Lower	Upper
128	100		
129	25.9	0.0	31.0
127	12.5	0.0	33.0

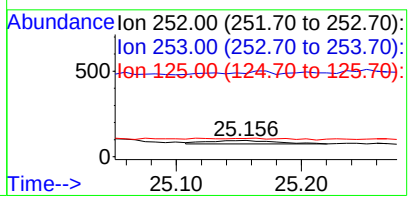




#23
Benzo(j)fluoranthene
Concen: 0.65 ug/kg
RT: 25.156 min Scan# 1922
Delta R.T. -0.001 min
Lab File: 16080317.D
Acq: 3 Aug 2016 7:06 pm

Tgt Ion:252 Resp: 79

Ion	Ratio	Lower	Upper
252	100		
253	36.7	2.0	42.0
125	7.6	0.0	39.3



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160803\
Data File : 16080319.D
Acq On : 3 Aug 2016 8:27 pm
Operator :
Sample : ICV2-160803
Misc : ICV
ALS Vial : 19 Sample Multiplier: 1

Quant Time: Aug 04 09:01:43 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 16:07:35 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	11.042	136	387288	4000.00	ug/kg	99
6) Acenaphthene-d10	13.499	164	209956	4000.00	ug/kg	115
11) Phenanthrene-d10	15.608	188	609657	4000.00	ug/kg	122
17) Chrysene-d12	21.516	240	657322	4000.00	ug/kg	98
20) Perylene-d12	26.741	264	594208	4000.00	ug/kg	97

System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.422	172	130518	2032.16	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 50.80%			
15) 4-Terphenyl-d14	18.167	244	251408	1655.77	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery = 41.39%#			

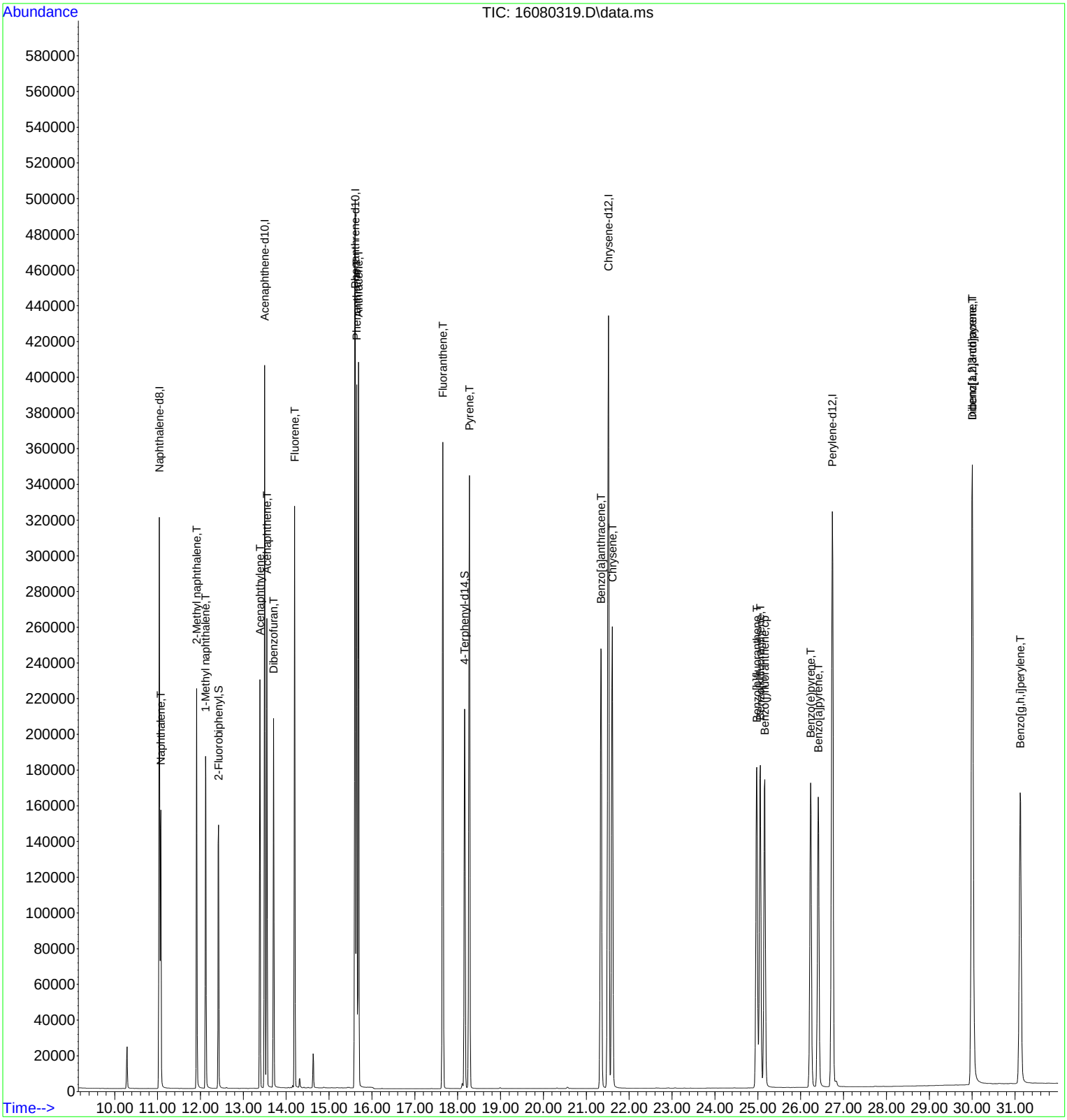
Target Compounds						Qvalue
2) Naphthalene	11.076	128	177263	1882.44	ug/kg	99
3) 2-Methyl naphthalene	11.910	142	119739	2020.67	ug/kg	100
4) 1-Methyl naphthalene	12.127	142	110170	2024.75	ug/kg	95
7) Acenaphthylene	13.386	152	200745	1994.19	ug/kg	99
8) Acenaphthene	13.551	153	125065	1961.01	ug/kg	97
9) Dibenzofuran	13.707	168	186459	2063.38	ug/kg	89
10) Fluorene	14.193	166	168105	2204.22	ug/kg	99
12) Phenanthrene	15.643	178	328719	1994.40	ug/kg	99
13) Anthracene	15.687	178	314489	1865.50	ug/kg	99
14) Fluoranthene	17.651	202	379720	1717.00	ug/kg	99
16) Pyrene	18.271	202	383475	1670.38	ug/kg	99
18) Benzo[a]anthracene	21.347	228	352868	2070.44	ug/kg	100
19) Chrysene	21.605	228	326961	2010.51	ug/kg	100
21) Benzo[b]fluoranthene	24.978	252	339971	2120.48	ug/kg	99
22) Benzo[k]fluoranthene	25.059	252	304117	2217.30	ug/kg	99
23) Benzo(j)fluoranthene	25.163	252	287778	2148.18	ug/kg	100
24) Benzo(e)pyrene	26.234	252	314023	2024.07	ug/kg	100
25) Benzo[a]pyrene	26.411	252	305106	2072.28	ug/kg	99
26) Indeno[1,2,3-cd]pyrene	30.010	276	377399	2170.39	ug/kg	97
27) Dibenz[a,h]anthracene	30.002	278	313771	2194.54	ug/kg	98
28) Benzo[g,h,i]perylene	31.121	276	321130	2102.41	ug/kg	97

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160803\
Data File : 16080319.D
Acq On : 3 Aug 2016 8:27 pm
Operator :
Sample : ICV2-160803
Misc : ICV
ALS Vial : 19 Sample Multiplier: 1

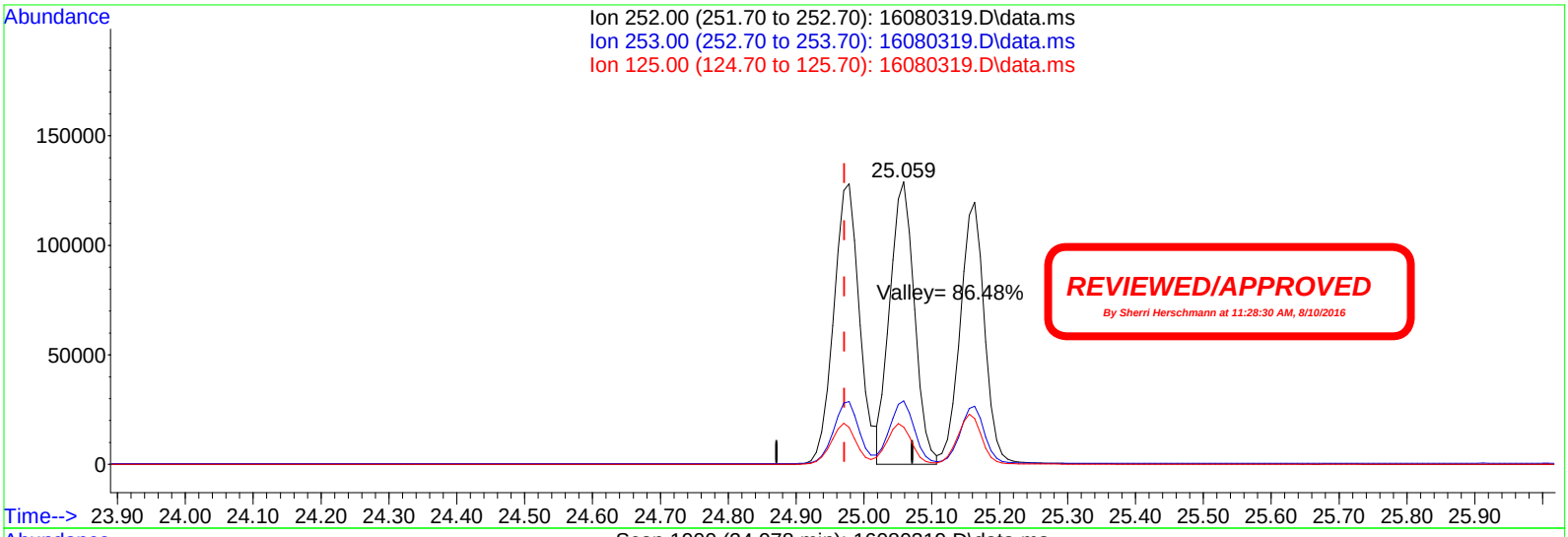
Quant Time: Aug 04 09:01:43 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 16:07:35 2016
Response via : Initial Calibration

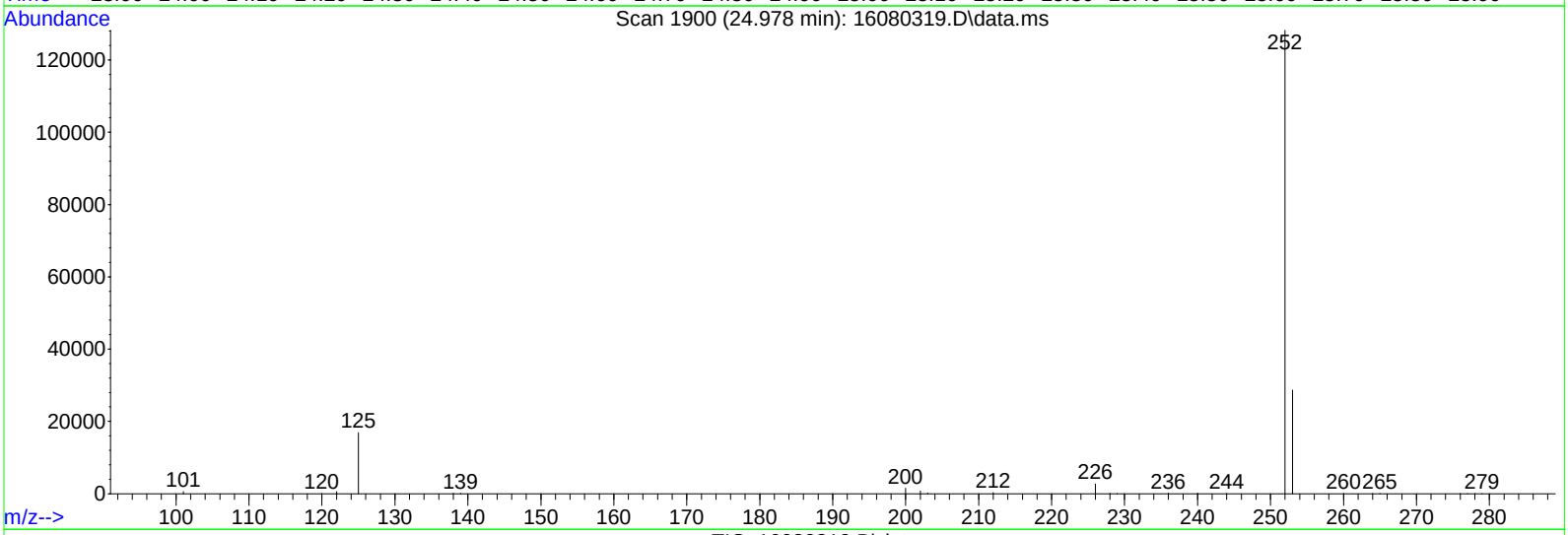


Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\160803\
Data File : 16080319.D
Acq On : 3 Aug 2016 8:27 pm
Operator :
Sample : ICV2-160803
Misc : ICV
ALS Vial : 19 Sample Multiplier: 1

Quant Time: Aug 04 09:01:43 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 16:07:35 2016
Response via : Initial Calibration





TIC: 16080319.D\data.ms

(21) Benzo[b]fluoranthene (T)

24.978min (+0.007) 2120.48ug/kg

response 339971

Ion	Exp%	Act%
252.00	100	100
253.00	22.10	22.03
125.00	13.90	13.12
0.00	0.00	0.00

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160803\
Data File : 16080321.D
Acq On : 3 Aug 2016 9:47 pm
Operator :
Sample : SBLK-160803
Misc : SBLK
ALS Vial : 21 Sample Multiplier: 1

Quant Time: Aug 04 09:01:46 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 16:07:35 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	11.039	136	341177	4000.00	ug/kg	87
6) Acenaphthene-d10	13.496	164	221523	4000.00	ug/kg	121
11) Phenanthrene-d10	15.606	188	589500	4000.00	ug/kg	118
17) Chrysene-d12	21.509	240	575268	4000.00	ug/kg	85
20) Perylene-d12	26.734	264	532525	4000.00	ug/kg	87

System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.428	172	45	0.80	ug/kg	0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery = 0.02%#			
15) 4-Terphenyl-d14	18.159	244	243	1.66	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery = 0.04%#			

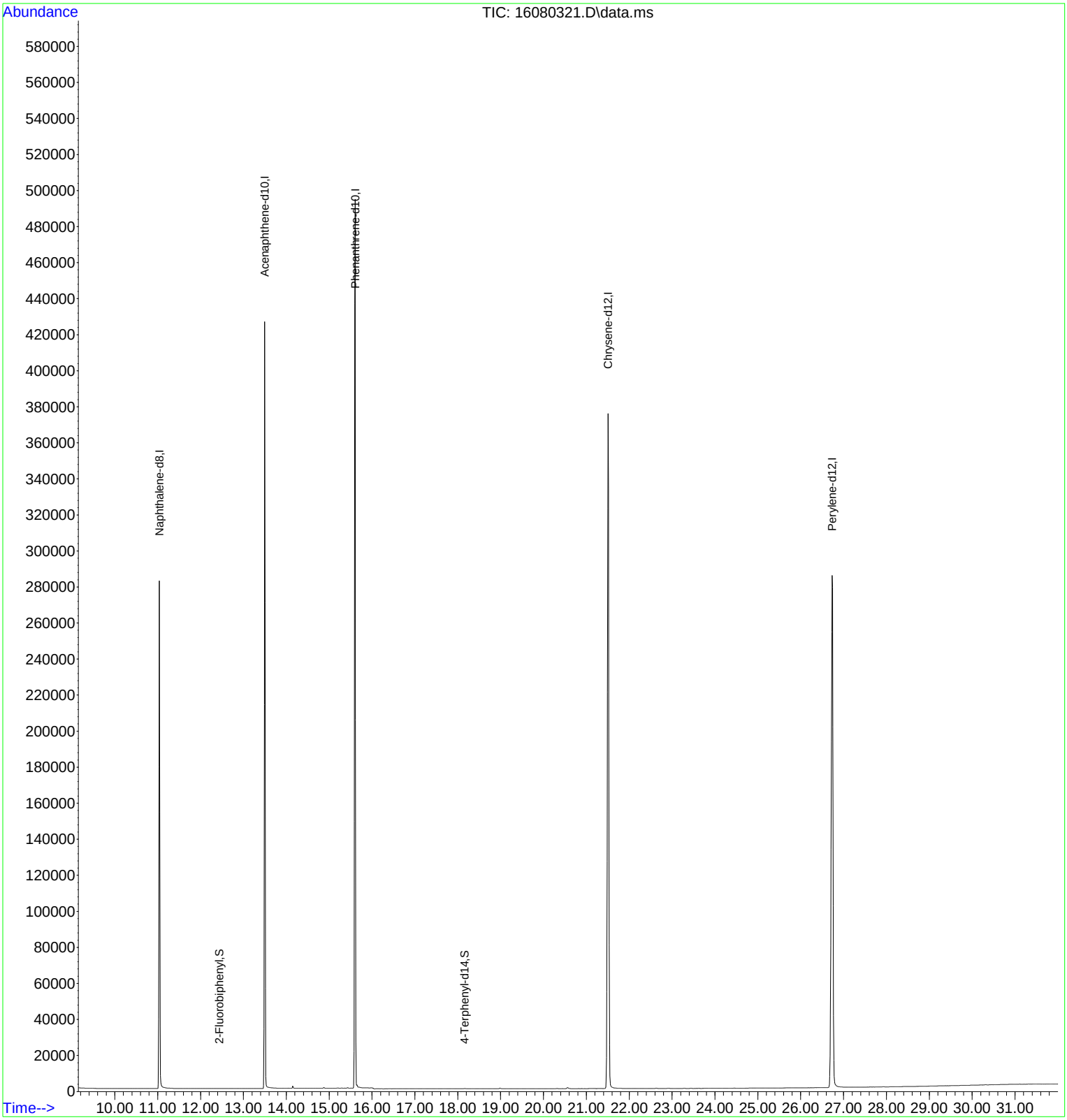
Target Compounds	Qvalue

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160803\
Data File : 16080321.D
Acq On : 3 Aug 2016 9:47 pm
Operator :
Sample : SBLK-160803
Misc : SBLK
ALS Vial : 21 Sample Multiplier: 1

Quant Time: Aug 04 09:01:46 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 16:07:35 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160803\
Data File : 16080322.D
Acq On : 3 Aug 2016 10:26 pm
Operator :
Sample : 1607317-26B
Misc : SAMP
ALS Vial : 22 Sample Multiplier: 1

Quant Time: Aug 04 09:01:10 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 16:07:35 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	11.042	136	346609	4000.00	ug/kg	88
6) Acenaphthene-d10	13.499	164	188826	4000.00	ug/kg	103
11) Phenanthrene-d10	15.601	188	544236	4000.00	ug/kg	109
17) Chrysene-d12	21.509	240	597060	4000.00	ug/kg	89
20) Perylene-d12	26.734	264	545830	4000.00	ug/kg	89

System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.414	172	174652	3038.48	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	75.96%		
15) 4-Terphenyl-d14	18.160	244	343011	2530.62	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery =	63.27%		

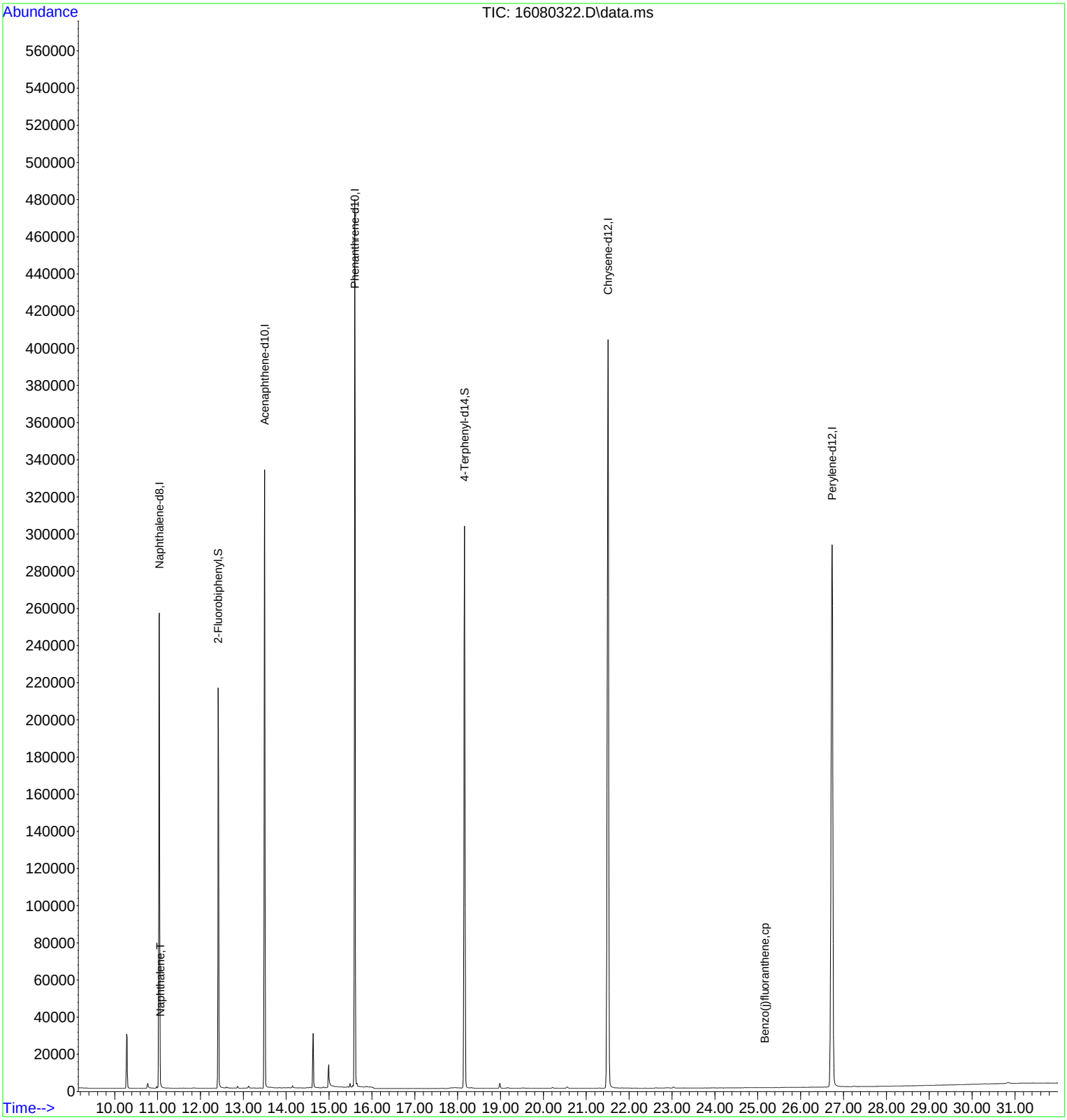
Target Compounds						Qvalue
2) Naphthalene	11.068	128	608	7.21	ug/kg#	74
23) Benzo(j)fluoranthene	25.156	252	19	0.15	ug/kg#	1

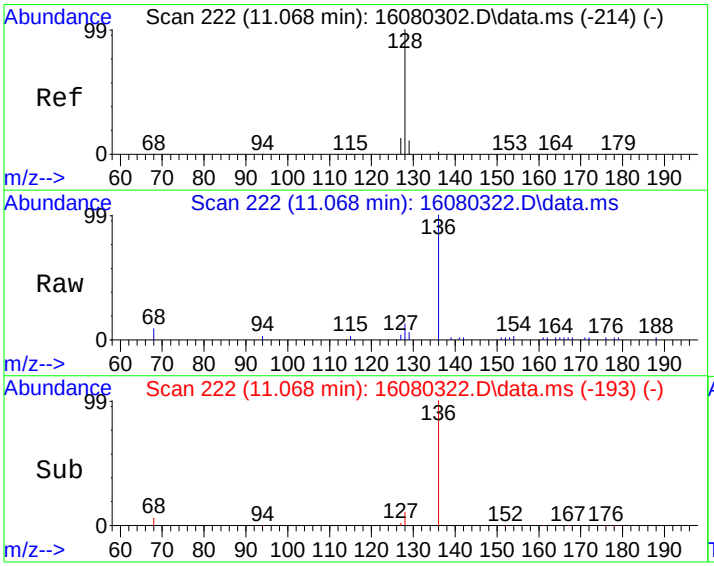
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160803\
Data File : 16080322.D
Acq On : 3 Aug 2016 10:26 pm
Operator :
Sample : 1607317-26B
Misc : SAMP
ALS Vial : 22 Sample Multiplier: 1

Quant Time: Aug 04 09:01:10 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 16:07:35 2016
Response via : Initial Calibration

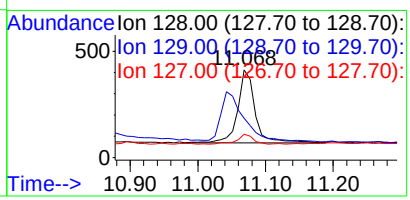


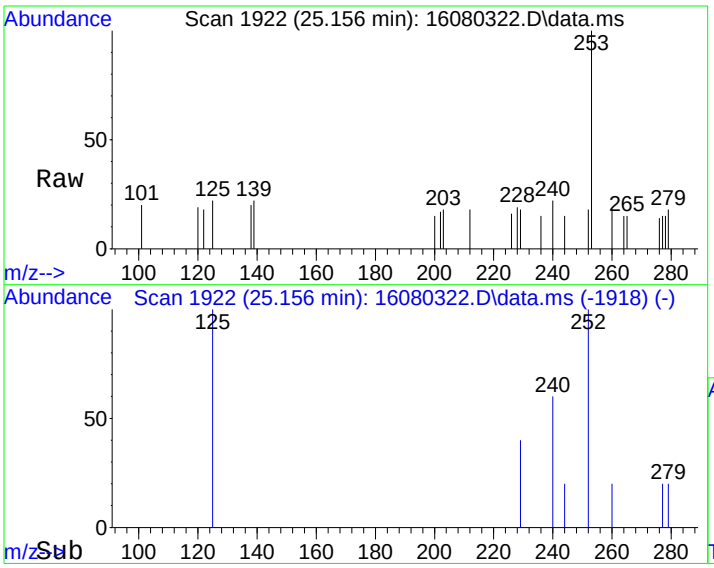


#2
Naphthalene
Concen: 7.21 ug/kg
RT: 11.068 min Scan# 222
Delta R.T. 0.002 min
Lab File: 16080322.D
Acq: 3 Aug 2016 10:26 pm

Tgt Ion:128 Resp: 608

Ion	Ratio	Lower	Upper
128	100		
129	32.1	0.0	31.0#
127	12.8	0.0	33.0

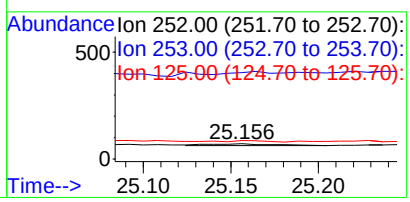




#23
Benzo(j)fluoranthene
Concen: 0.15 ug/kg
RT: 25.156 min Scan# 1922
Delta R.T. 0.000 min
Lab File: 16080322.D
Acq: 3 Aug 2016 10:26 pm

Tgt Ion:252 Resp: 19

Ion	Ratio	Lower	Upper
252	100		
253	115.8	2.0	42.0#
125	57.9	0.0	39.3#



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160803\
Data File : 16080323.D
Acq On : 3 Aug 2016 11:06 pm
Operator :
Sample : 1607317-39B
Misc : SAMP
ALS Vial : 23 Sample Multiplier: 1

Quant Time: Aug 04 09:01:13 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 16:07:35 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	11.034	136	371474	4000.00	ug/kg	95
6) Acenaphthene-d10	13.499	164	195837	4000.00	ug/kg	107
11) Phenanthrene-d10	15.600	188	571038	4000.00	ug/kg	114
17) Chrysene-d12	21.509	240	623997	4000.00	ug/kg	93
20) Perylene-d12	26.735	264	572458	4000.00	ug/kg	93

System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.414	172	184921	3001.79	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 75.04%			
15) 4-Terphenyl-d14	18.160	244	348765	2452.31	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery = 61.31%			

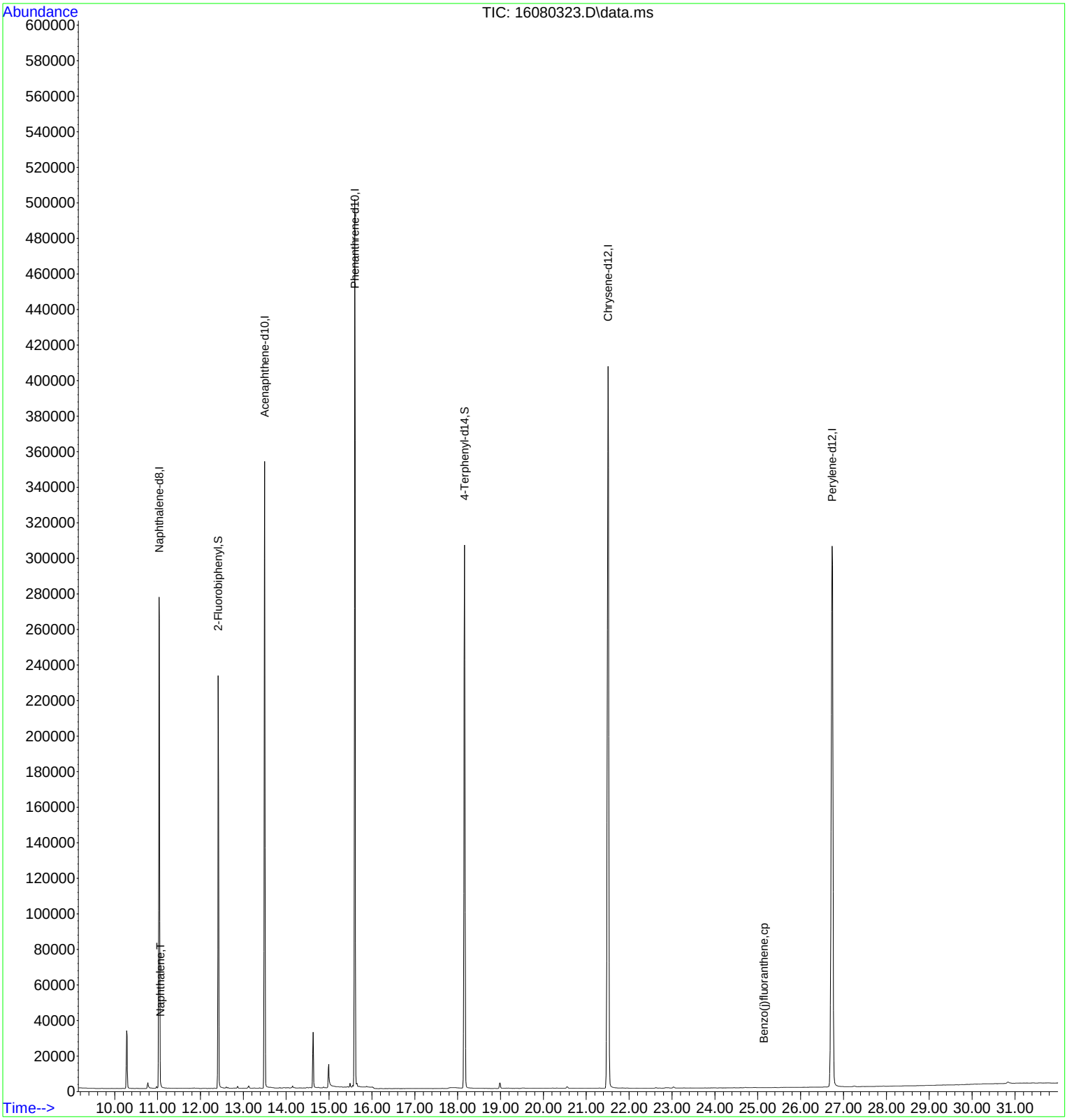
Target Compounds						Qvalue
2) Naphthalene	11.068	128	620	6.86	ug/kg#	71
23) Benzo(j)fluoranthene	25.140	252	58	0.45	ug/kg#	63

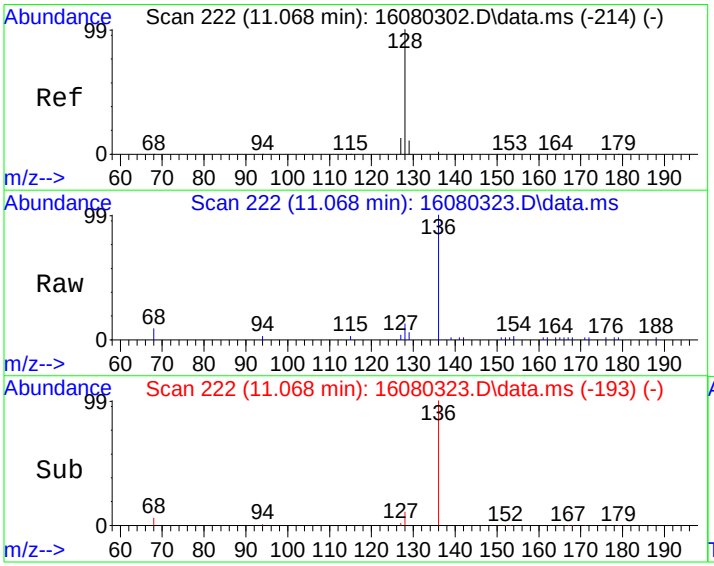
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160803\
Data File : 16080323.D
Acq On : 3 Aug 2016 11:06 pm
Operator :
Sample : 1607317-39B
Misc : SAMP
ALS Vial : 23 Sample Multiplier: 1

Quant Time: Aug 04 09:01:13 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 16:07:35 2016
Response via : Initial Calibration

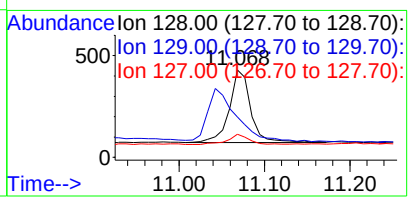


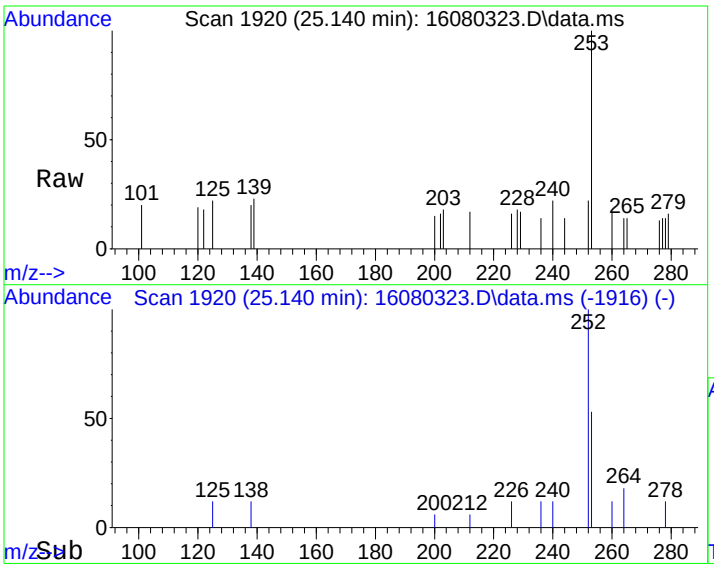


#2
Naphthalene
Concen: 6.86 ug/kg
RT: 11.068 min Scan# 222
Delta R.T. 0.002 min
Lab File: 16080323.D
Acq: 3 Aug 2016 11:06 pm

Tgt Ion:128 Resp: 620

Ion	Ratio	Lower	Upper
128	100		
129	33.3	0.0	31.0#
127	14.3	0.0	33.0

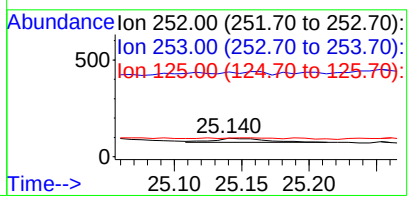




#23
Benzo(j)fluoranthene
Concen: 0.45 ug/kg
RT: 25.140 min Scan# 1920
Delta R.T. -0.016 min
Lab File: 16080323.D
Acq: 3 Aug 2016 11:06 pm

Tgt Ion:252 Resp: 58

Ion	Ratio	Lower	Upper
252	100		
253	51.7	2.0	42.0#
125	15.5	0.0	39.3



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160803\
Data File : 16080327.D
Acq On : 4 Aug 2016 1:45 am
Operator :
Sample : CCV-160803
Misc : CCV
ALS Vial : 27 Sample Multiplier: 1

Quant Time: Aug 04 09:01:49 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 16:07:35 2016
Response via : Initial Calibration

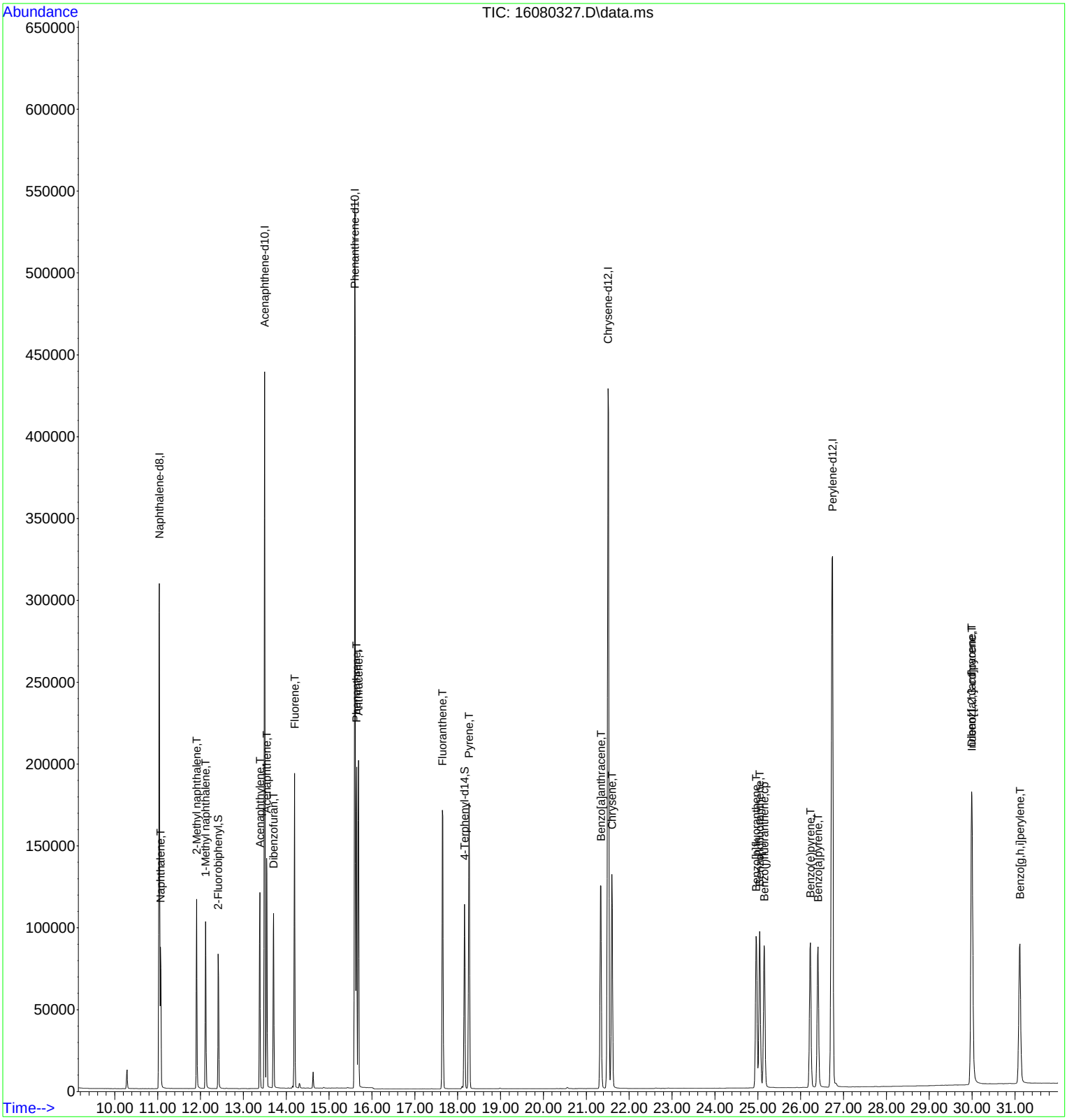
Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	11.041	136	409391	4000.00	ug/kg	104
6) Acenaphthene-d10	13.498	164	237519	4000.00	ug/kg	130
11) Phenanthrene-d10	15.599	188	651082	4000.00	ug/kg	130
17) Chrysene-d12	21.509	240	671659	4000.00	ug/kg	100
20) Perylene-d12	26.743	264	627164	4000.00	ug/kg	102
System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.413	172	70807	1042.94	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 26.07%#			
15) 4-Terphenyl-d14	18.160	244	124759	769.38	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery = 19.23%#			
Target Compounds						Qvalue
2) Naphthalene	11.067	128	92674	931.01	ug/kg	100
3) 2-Methyl naphthalene	11.909	142	63055	1006.64	ug/kg	100
4) 1-Methyl naphthalene	12.118	142	58193	1011.75	ug/kg	100
7) Acenaphthylene	13.385	152	111325	977.56	ug/kg	100
8) Acenaphthene	13.541	153	69742	966.65	ug/kg	100
9) Dibenzofuran	13.706	168	106268	1039.51	ug/kg	97
10) Fluorene	14.193	166	94669	1097.27	ug/kg	100
12) Phenanthrene	15.642	178	166343	945.02	ug/kg	100
13) Anthracene	15.686	178	171132	950.54	ug/kg	100
14) Fluoranthene	17.644	202	190210	805.36	ug/kg	99
16) Pyrene	18.264	202	190806	778.25	ug/kg	98
18) Benzo[a]anthracene	21.340	228	175783	1009.38	ug/kg	99
19) Chrysene	21.598	228	165503	995.97	ug/kg	99
21) Benzo[b]fluoranthene	24.963	252	169176	999.74	ug/kg	99
22) Benzo[k]fluoranthene	25.044	252	159278	1100.26	ug/kg	100
23) Benzo(j)fluoranthene	25.148	252	148663	1051.41	ug/kg	99
24) Benzo(e)pyrene	26.227	252	159582	974.55	ug/kg	100
25) Benzo[a]pyrene	26.404	252	158866	1022.32	ug/kg	98
26) Indeno[1,2,3-cd]pyrene	30.003	276	199081	1084.74	ug/kg	92
27) Dibenz[a,h]anthracene	29.987	278	165023	1093.53	ug/kg	100
28) Benzo[g,h,i]perylene	31.115	276	169994	1054.46	ug/kg	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160803\
Data File : 16080327.D
Acq On : 4 Aug 2016 1:45 am
Operator :
Sample : CCV-160803
Misc : CCV
ALS Vial : 27 Sample Multiplier: 1

Quant Time: Aug 04 09:01:49 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 16:07:35 2016
Response via : Initial Calibration



GCMS8_160809A
For

DHL Work Order
1607317

Lab Data Review Check List
EPA Method 8270 / 625 - PAH: Polynuclear Aromatic Hydrocarbons

SEE RUN LOG FOR ALL PROJECT AND BATCH NUMBERS AND MATRICES	Run ID: GCMS8_160809A
Batch Number(s): See Run Log. Matrix: See Run Log.	SOP: ORGANICS-PAH-01

Review Item	Yes	No	N/A	2nd Level Review
Data Folder Contents 1. Is the Prep Batch Report included? Check and record the following: ***Prep Start/End Dates, Sample Amounts, Bottle #s***	X			x
2. Are the reagents and spikes listed on the Prep Batch Report current with a valid expiration date? ***All standard/QC sample preparations shall be documented in LIMS***	X			
3. Is the Run Log and instrument sequence included? ***Check the Test Code, Sample Type, Batch ID, and Analysis Date/Time***	X			
4. Is the System Verification - Tune Report included? ***Date/Tme of Tune starts 12-hour analysis window***	X			
5. Is the Evaluate Continuing Calibration Report included?	X			

Daily Demonstration of Performance

QC items that do not meet method/SOP/project requirements will be described on the run log. All variances that impact data quality will be described in the Variance/Comment Section on page 2.

Review Item	Frequency	Limits	Pass	Fail (List Batch/Sample) **See Run Log**	2nd Level Review
Tune	Before ICAL Every 12 hours	See Tune Eval Report	X		x
Resolution Check - Benzo(b) and Benzo(k)phenanthrene	Before ICAL Every 12 hours	Benzo(b) and Benzo(k) Valley > 50%	X		
Initial Calibration Curve (ICAL) (minimum: 5 Standards)	Prior to samples and when ICV fails	Avg. RF - %RSD ≤ 15% Curve (COD) - R^2 ≥ 0.990	X		
SSCV - (Second Source)	After calibration (ICAL)	80-120%	X		
ICV - (Daily Initial Cal Verification)	Every 12 hours	ISTDs Area% (50-200%) Surrogates %R (See LIMS) Analytes %R (80-120%)	X		

Review Item	Frequency	Limits	Pass	Fail	N/A	Review
Method Blank (MB) System Blank (SYS Blank)	Every Batch (MB) Daily (SYS BL)	< MDL / <½ RL (DoD) or <1/10 the sample/reg limit	X			x
Lab Control Sample (LCS)	Every Batch	See LIMS	X			
Lab Control Sample Dup (LCSD)	Insufficient sample Sample Matrix	See LIMS			X	
LCSD - RPD	Every LCS/LCSD	≤ 30 (Aq/Soil/DoD)			X	
Field Samples	Up to 20 per prep batch	ISTDs Area% (50-200%) Surrogates %R (See LIMS) RRT ± 0.06 RRT Standard Q value > 70 - check for #	X			
Matrix Spike (MS)	Every Batch/20 samples	See LIMS	X			
Matrix Spike Duplicate (MSD) (MSD is N/A for Method 625)	Every Prep Batch except Method 625	See LIMS	X			
MSD - RPD (MSD is N/A for Method 625)	Every MS/MSD except Method 625	≤ 30 (Aq/Soil/DoD)	X			

Lab Data Review Check List
EPA Method 8270 / 625 - PAH: Polynuclear Aromatic Hydrocarbons

Review Item	Criteria	Yes	No	N/A	2nd Level Review
Sample Analysis	7 days (Aq) - extraction			X	
1. Are all sample hold times met?	14 days (Soil) - extraction	X			
	40 days analysis	X			
2. Are all manual integrations signed (Before & After) and printouts included ? Put in LIMS Comment Section ***Include MI form for DoD work***	Before & After - signed Comment Section in LIMS MI Form - DoD only			X	x
3. Are all samples with concentrations > the highest standard used for calibration diluted and reanalyzed?	> highest standard			X	
Review Item #3 is N/A ONLY if all sample results are within Calibration range or NO if dilution is in different folder					
4. Is mass spectra reviewed/verified if Q value is <70 and/or # flag for results >MDL?	Q value <70 - All hits	X			x
5. Are ALL reported analytes > MDL (+ J flags) circled by the analyst?		X	**Return to analyst if NO**		
VARIANCE REPORT					
QC items that do not meet method/SOP/project requirements will be described on the run log. All variances that impact data quality will be described in this section.					
NON-CONFORMANCES / VARIANCE	All deviations from the method and SOP that affect data quality			X	x
1. Are all non-conformances included and noted?					
2. Are all corrective actions included?				X	
3. Does the variance require approval by the Technical Director/General Manager/QA Manager?				X	

Approved by: Date:

Description and Corrective Actions of QC items that do not meet method/SOP/project requirements:

****INCLUDE VARIANCE ITEM / REASON / CORRECTIVE ACTION / IMPACT ON DATA****

VARIANCE ITEM	REASON	CORRECTIVE ACTION
___ Hold Time exceeded (7D/14D-Ext/40D-Analysis)	___ Sample Received out of HT	___ Reanalyze QC to confirm
___ ICV out of control (±20%)	___ Carryover from previous run	___ Recalibrate
___ MB/SYS BL out of control (> MDL / >½ RL)	___ Cross contamination	___ Reprep/Reanalyze sample
___ LCS ___LCSD out of control (See LIMS)	___ Lab Artifact	___ Reprep/Reanalyze Batch
___ RPD out of control for LCS/LCSD (>30)	___ Prep Spike error (describe)	___ Reanalyze Batch/Sample/QC
___ MS ___ MSD out of control (See LIMS)	___ High Levels of target analytes	___ Verify H2O/reagents are clean
___ RPD out of control for MS/MSD (>30)	___ High Levels of non-targets	___ Reanalyze sample to confirm
___ Internal Standard(s) out of control	___ Insufficient sample for QC	___ Sample results ND w/ dilution
___ Multiple Surrogates out of control	___ Prep Error	___ Client notified and approved
___ No MS/MSD prepared - LCS/LCSD used instead	___ Analytical Error	___ Flag data / Case narrative
___ Missing QC (other than MS/MSD)	___ Client Request	___ Instrument Maintenance
___ QC sample(s) was mis-spiked	___ Other (describe below)	___ Accept data
___ Other (describe below)		___ Cannot reanalyze (HT out/Lack of Sample)

General Comments and Impact on Data: **See Run Log.**

Analyst: Don Winston Date: 8/10/2016

Second-Level Review: Janice Whitt Date: 8/18/2016

REVIEWED BY
By Janice Whitt at 11:18:15 AM, 8/18/2016

DHL Analytical, Inc.

Run ID: GCMS8_160809A **Run No.:** 87516

Analytical Run Date: 8/9/2016 **InstrumentID:** GCMS8

Analyst: Don Winston **Column:** Rtx-5Sil MS (30m x 0.25mm ID x 0.5µm df)

Calibration ID: 682 **Column ID:** 0.18mm

Column Length: 20m

SampID	DF	TestCode	SampType	Batch ID	Analysis Date/Time	Q	Comments
DFTPP-160809	1	PAH_LL_SDOD1	TUNE	R87516	8/9/2016 8:25:00 AM		All samples in this batch run at 10x - detection limit is sufficient and is approved by project managers.
ICV-160809	1	PAH_LL_SDOD1	ICV	R87516	8/9/2016 9:04:00 AM		
LCS-76617	1	PAH_LL_SDOD1	LCS	76617	8/9/2016 9:44:00 AM		
MB-76617	1	PAH_LL_SDOD1	MBLK	76617	8/9/2016 10:24:00 AM		
1607317-27A	10	PAH_LL_SDOD1	SAMP	76617	8/9/2016 11:05:00 AM		
1607317-28A	10	PAH_LL_SDOD1	SAMP	76617	8/9/2016 11:45:00 AM		
1607317-29A	10	PAH_LL_SDOD1	SAMP	76617	8/9/2016 12:25:00 PM		
1607317-30A	10	PAH_LL_SDOD1	SAMP	76617	8/9/2016 1:05:00 PM		
1607317-31A	10	PAH_LL_SDOD1	SAMP	76617	8/9/2016 1:45:00 PM		
1607317-32A	10	PAH_LL_SDOD1	SAMP	76617	8/9/2016 2:25:00 PM		
1607317-33A	10	PAH_LL_SDOD1	SAMP	76617	8/9/2016 3:06:00 PM		
1607317-34A	10	PAH_LL_SDOD1	SAMP	76617	8/9/2016 3:46:00 PM		
1607317-35A	10	PAH_LL_SDOD1	SAMP	76617	8/9/2016 4:27:00 PM		
1607317-36A	10	PAH_LL_SDOD1	SAMP	76617	8/9/2016 5:08:00 PM		
1607317-37A	10	PAH_LL_SDOD1	SAMP	76617	8/9/2016 5:48:00 PM		
1607317-38A	10	PAH_LL_SDOD1	SAMP	76617	8/9/2016 6:27:00 PM		
DFTPP2-160809	1	PAH_LL_SDOD1	TUNE	R87516	8/9/2016 7:07:00 PM		
ICV2-160809	1	PAH_LL_SDOD1	ICV	R87516	8/9/2016 7:46:00 PM		
SB-160809	1	PAH_LL_SDOD1	SBLK	76617	8/9/2016 9:05:00 PM		
1607337-01A	10	PAH_LL_SDOD1	SAMP	76617	8/9/2016 9:45:00 PM		
1607337-02A	10	PAH_LL_SDOD1	SAMP	76617	8/9/2016 10:25:00 PM		
1607337-03A	10	PAH_LL_SDOD1	SAMP	76617	8/9/2016 11:05:00 PM		
1607337-04A	10	PAH_LL_SDOD1	SAMP	76617	8/9/2016 11:45:00 PM		
1607337-05A	10	PAH_LL_SDOD1	SAMP	76617	8/10/2016 12:24:00 AM		
1607337-06A	10	PAH_LL_SDOD1	SAMP	76617	8/10/2016 1:04:00 AM		
1607337-07A	10	PAH_LL_SDOD1	SAMP	76617	8/10/2016 1:43:00 AM		
1607337-08A	10	PAH_LL_SDOD1	SAMP	76617	8/10/2016 2:23:00 AM		
1607317-27AMS	10	PAH_LL_SDOD1	MS	76617	8/10/2016 3:02:00 AM		
1607317-27AMSD	10	PAH_LL_SDOD1	MSD	76617	8/10/2016 3:42:00 AM		

Std ID	Std Name	Type	Exp. Date
DFTPP160509	2.5 PPM 525 TUNE STD.	TUNE	05/07/2017
PAHCCV160806	1 PPM PAH CCV STANDARD	CCV	11/04/2016
PAHICV160806	2 PPM PAH ICV	ICV	11/04/2016
SVI160510-3	4000 PPM INTERNAL STANDAR	ALL	07/30/2017

DHL Analytical, Inc.

Run ID: GCMS8_160809A **Run No.:** 87516

CCV1-160809	1	PAH_LL_SDOD1	CCV	R87516	8/10/2016 4:21:00 AM		

Std ID	Std Name	Type	Exp. Date
DFTPP160509	2.5 PPM 525 TUNE STD.	TUNE	05/07/2017
PAHCCV160806	1 PPM PAH CCV STANDARD	CCV	11/04/2016
PAHICV160806	2 PPM PAH ICV	ICV	11/04/2016
SVI160510-3	4000 PPM INTERNAL STANDAR	ALL	07/30/2017

Sequence Name: C:\msdchem\1\sequence\160809.S
Comment:
Operator:
Data Path: C:\MSDCHEM\1\DATA\160808\
Instrument Name: GCMS #8
Instrument Control Pre-Seq Cmd:
Data Analysis Pre-Seq Cmd:

Instrument Control Post-Seq Cmd:
Data Analysis Post-Seq Cmd:

Method Sections To Run
(X) Full Method
( ) Reprocessing Only

On A Barcode Mismatch
(X) Inject Anyway
( ) Don't Inject

Line			Sample Name/Misc Info		
1)	Sample	1	16080901	DFTPPPAH	DFTPP-160809
2)	Sample	2	16080902	PAH160806	ICV-160809
3)	Sample	3	16080903	PAH160806	LCS-76617
4)	Sample	4	16080904	PAH160806	MB-76617
5)	Sample	5	16080905	PAH160806	1607317-27A
6)	Sample	6	16080906	PAH160806	1607317-28A
7)	Sample	7	16080907	PAH160806	1607317-29A
8)	Sample	8	16080908	PAH160806	1607317-30A
9)	Sample	9	16080909	PAH160806	1607317-31A
10)	Sample	10	16080910	PAH160806	1607317-32A
11)	Sample	11	16080911	PAH160806	1607317-33A
12)	Sample	12	16080912	PAH160806	1607317-34A
13)	Sample	13	16080913	PAH160806	1607317-35A
14)	Sample	14	16080914	PAH160806	1607317-36A
15)	Sample	15	16080915	PAH160806	1607317-37A
16)	Sample	16	16080916	PAH160806	1607317-38A
17)	Sample	17	16080917	DFTPPPAH	DFTPP2-160809
18)	Sample	18	16080918	PAH160806	ICV-160809
19)	Sample	19	16080919	PAH160806	SBLK
20)	Sample	20	16080920	PAH160806	SB-160809
21)	Sample	21	16080921	PAH160806	1607337-01A
22)	Sample	22	16080922	PAH160806	1607337-02A
23)	Sample	23	16080923	PAH160806	1607337-03A
24)	Sample	24	16080924	PAH160806	1607337-04A
25)	Sample	25	16080925	PAH160806	1607337-05A
26)	Sample	26	16080926	PAH160806	1607337-06A
27)	Sample	27	16080927	PAH160806	1607337-07A
28)	Sample	28	16080928	PAH160806	1607337-08A
29)	Sample	29	16080929	PAH160806	1607317-27AMS
30)	Sample	30	16080930	PAH160806	1607317-27AMSD
31)	Sample	31	16080931	PAH160806	CCV1-160809

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **8/2/2016 12:41:56 PM**
Digestion:
Prep End Date: **8/2/2016 3:20:00 PM**

Prep Batch **76617** Prep Code: **3550_PAHDOD** Technician: **Alex Robbins**

Prep Factor Units: **mL/g**

Equipment List

Turbo-Vap # 1,2,3
Balance # 25
Sonicators # 1,2,3,4

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607317-27A	Soil		10.3	10	0.971	of 3	
1607317-27AMS	Soil		10.18	10	0.982	of	
1607317-27AMSD	Soil		10.09	10	0.991	of	
1607317-28A	Soil		10.32	10	0.969	1 of 1	
1607317-29A	Soil		10.1	10	0.990	1 of 1	
1607317-30A	Soil		10.13	10	0.987	1 of 1	
1607317-31A	Soil		10.06	10	0.994	1 of 1	
1607317-32A	Soil		10.2	10	0.980	1 of 1	
1607317-33A	Soil		10.28	10	0.973	1 of 1	
1607317-34A	Soil		10.69	10	0.935	1 of 1	
1607317-35A	Soil		10.2	10	0.980	1 of 1	
1607317-36A	Soil		10.2	10	0.980	1 of 1	
1607317-37A	Soil		10.14	10	0.986	1 of 1	
1607317-38A	Soil		10.56	10	0.947	1 of 1	
1607337-01A	Soil		10.06	10	0.994	1 of 1	
1607337-02A	Soil		10.17	10	0.983	1 of 1	
1607337-03A	Soil		10.02	10	0.998	1 of 1	
1607337-04A	Soil		10.11	10	0.989	1 of 1	
1607337-05A	Soil		10.14	10	0.986	1 of 1	
1607337-06A	Soil		10.08	10	0.992	1 of 1	
1607337-07A	Soil		10.04	10	0.996	1 of 1	
1607337-08A	Soil		10.19	10	0.981	1 of 1	
LCS-76617	Soil		10	10	1.000	of	
MB-76617	Soil		10	10	1.000	of	

Number	Reagent Name	Amt	Units	Exp. Da
10394	Purified Sodium Sulfate	10	g	05/23/2026
10419	Methylene Chloride	8	ml	05/31/2026
10536	Whatman 41 Filter	1	filter	07/11/2026
10591	1:1 MeCl2/Acetone	120	ml	07/26/2026

Spk ID	Spike Name	SampType	Amt (mL or g)	Exp. Date
PAHPREP160727	200 PPM PAH Spike Mix	LCS/MS/MSD	0.05	10/25/2016
SVPREP160802	40 PPM Surrogate Standard	ALL	0.25	10/31/2016

REVIEWED BY
By Janice Whitt at 10:56:54 AM, 8/18/2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **8/2/2016 12:41:56 PM**
Digestion:
Prep End Date: 8/2/16 3:20 PM

Prep Batch **76617** Prep Code: **3550_PAHDOD** Technician: **Alex Robbins**

Prep Factor Units: **mL/g**

Equipment List
Turbo-Vap # 1,2,3
Balance # 25
Sonicators # 1,2,3,4

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #		
1607317-27A	Soil		10 .30	10	1.000	1	of	3
1607317-27AMS	Soil		10 .18	10	1.000	1	of	↓
1607317-27AMSD	Soil		10 .09	10	1.000	1	of	
1607317-28A	Soil		10 .32	10	1.000	1	of	1
1607317-29A	Soil		10 .10	10	1.000	1	of	1
1607317-30A	Soil		10 .13	10	1.000	1	of	1
1607317-31A	Soil		10 .06	10	1.000	1	of	1
1607317-32A	Soil		10 .29	10	1.000	1	of	1
1607317-33A	Soil		10 .28	10	1.000	1	of	1
1607317-34A	Soil		10 69	10	1.000	1	of	1
1607317-35A	Soil		10 .20	10	1.000	1	of	1
1607317-36A	Soil		10 20	10	1.000	1	of	1
1607317-37A	Soil		10 14	10	1.000	1	of	1
1607317-38A	Soil		10 56	10	1.000	1	of	1
1607337-01A	Soil		10 06	10	1.000	1	of	1
1607337-02A	Soil		10 .17	10	1.000	1	of	1
1607337-03A	Soil		10 .02	10	1.000	1	of	1
1607337-04A	Soil		10 .11	10	1.000	1	of	1
1607337-05A	Soil		10 .14	10	1.000	1	of	1
1607337-06A	Soil		10 .08	10	1.000	1	of	1
1607337-07A	Soil		10 .04	10	1.000	1	of	1
1607337-08A	Soil		10 .19	10	1.000	1	of	1
LCS-76617	Soil		10	10	1.000		of	
MB-76617	Soil		10	10	1.000		of	

Number	Reagent Name	Amt	Units	Exp. D
10394	Purified Sodium Sulfate	10	g	05/23/2026
10419	Methylene Chloride	8	ml	05/31/2026
10536	Whatman 41 Filter	1	filter	07/11/2026
10591	1:1 MeCl2/Acetone	120	ml	07/26/2026

Spk ID	Spike Name	SampType	Amt (mL or g)	Exp. Date
PAHPREP160727	200 PPM PAH Spike Mix	LCS/MS/MSD	0.05	10/25/2016
SVPREP160802	40 PPM Surrogate Standard	ALL	0.25	10/31/2016

REVIEWED BY
By Janice Whitt at 10:56:51 AM, 8/18/2016

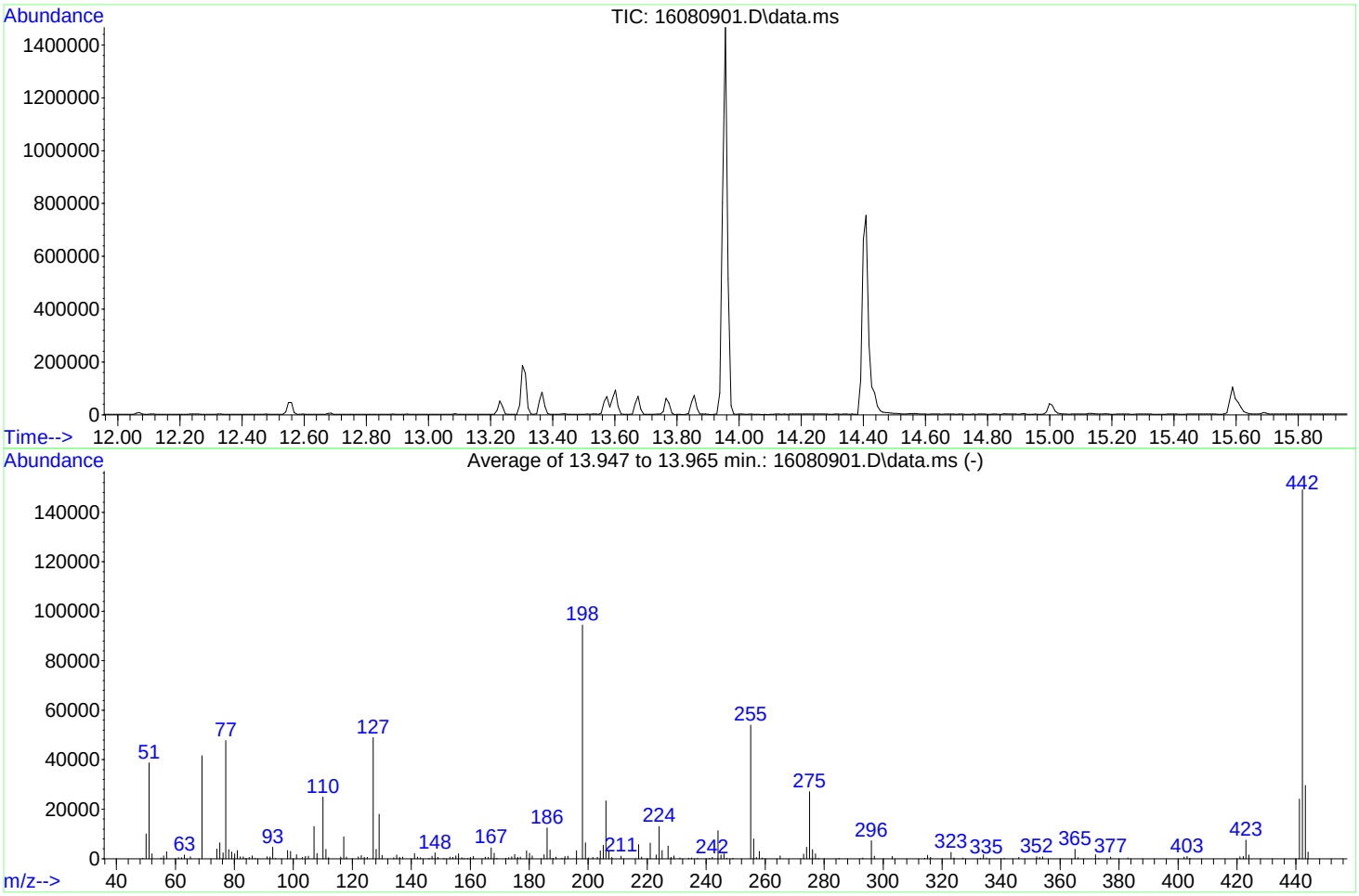
AK 8/2/16

8/2/16

Data Path : C:\msdchem\1\DATA\160809\
Data File : 16080901.D
Acq On : 9 Aug 2016 8:25 am
Operator :
Sample : DFTPP-160809
Misc : TUNE
ALS Vial : 1 Sample Multiplier: 1

Integration File: RTEINT.P

Method : C:\msdchem\1\METHODS\DFTPPPAH.M
Title : CLP BNA Calibration - Large Volume Injection
Last Update : Thu Aug 27 07:24:43 2015



AutoFind: Scans 426, 427, 428; Background Corrected with Scan 422

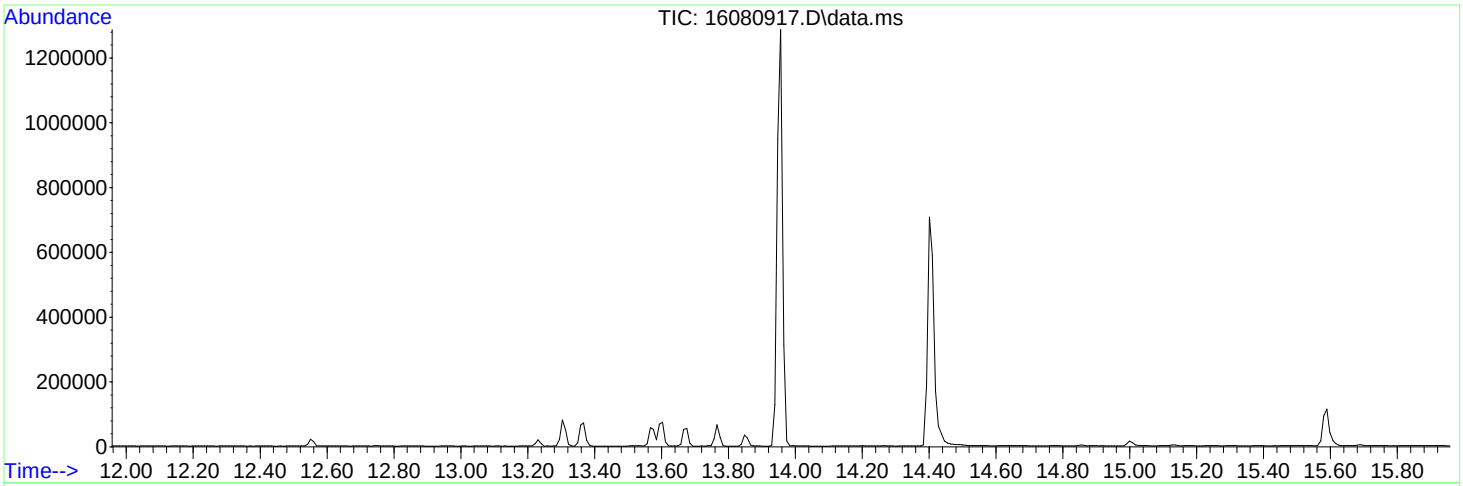
Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	10	80	41.1	38775	PASS
68	69	0.00	2	0.0	0	PASS
69	198	0.00	100	44.1	41662	PASS
70	69	0.00	2	0.0	0	PASS
127	198	10	80	51.8	48888	PASS
197	198	0.00	2	0.0	0	PASS
198	198	100	100	100.0	94418	PASS
199	198	5	9	6.9	6484	PASS
275	198	10	60	28.7	27130	PASS
365	198	1	200	4.1	3835	PASS
441	442	0.01	24	16.2	24092	PASS
442	198	50	400	158.0	149146	PASS
443	442	15	24	19.9	29627	PASS

REVIEWED BY
By Janice Whitt at 10:57:04 AM, 8/18/2016

Data Path : C:\msdchem\1\DATA\160809\
Data File : 16080917.D
Acq On : 9 Aug 2016 7:07 pm
Operator :
Sample : DFTPP2-160809
Misc : TUNE
ALS Vial : 17 Sample Multiplier: 1

Integration File: RTEINT.P

Method : C:\msdchem\1\METHODS\DFTPPPAH.M
Title : CLP BNA Calibration - Large Volume Injection
Last Update : Thu Aug 27 07:24:43 2015



AutoFind: Scans 426, 427, 428; Background Corrected with Scan 422

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	10	80	40.1	35017	PASS
68	69	0.00	2	0.0	0	PASS
69	198	0.00	100	42.7	37338	PASS
70	69	0.00	2	0.0	0	PASS
127	198	10	80	50.1	43754	PASS
197	198	0.00	2	0.0	0	PASS
198	198	100	100	100.0	87360	PASS
199	198	5	9	6.8	5933	PASS
275	198	10	60	28.6	24963	PASS
365	198	1	200	4.1	3585	PASS
441	442	0.01	24	16.1	22461	PASS
442	198	50	400	159.7	139549	PASS
443	442	15	24	19.6	27361	PASS

REVIEWED BY
By Janice Whitt at 10:57:07 AM, 8/18/2016

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160809\
Data File : 16080902.D
Acq On : 9 Aug 2016 9:04 am
Operator :
Sample : ICV-160809
Misc : ICV
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Aug 10 07:59:56 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	10.993	136	310975	4000.00	ug/kg	117
6) Acenaphthene-d10	13.454	164	231254	4000.00	ug/kg	143
11) Phenanthrene-d10	15.559	188	517156	4000.00	ug/kg	100
17) Chrysene-d12	21.449	240	463578	4000.00	ug/kg	100
20) Perylene-d12	26.655	264	464909	4000.00	ug/kg	111

System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.376	172	139773	2020.41	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 50.51%			
15) 4-Terphenyl-d14	18.113	244	171738	1888.89	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery = 47.22%#			

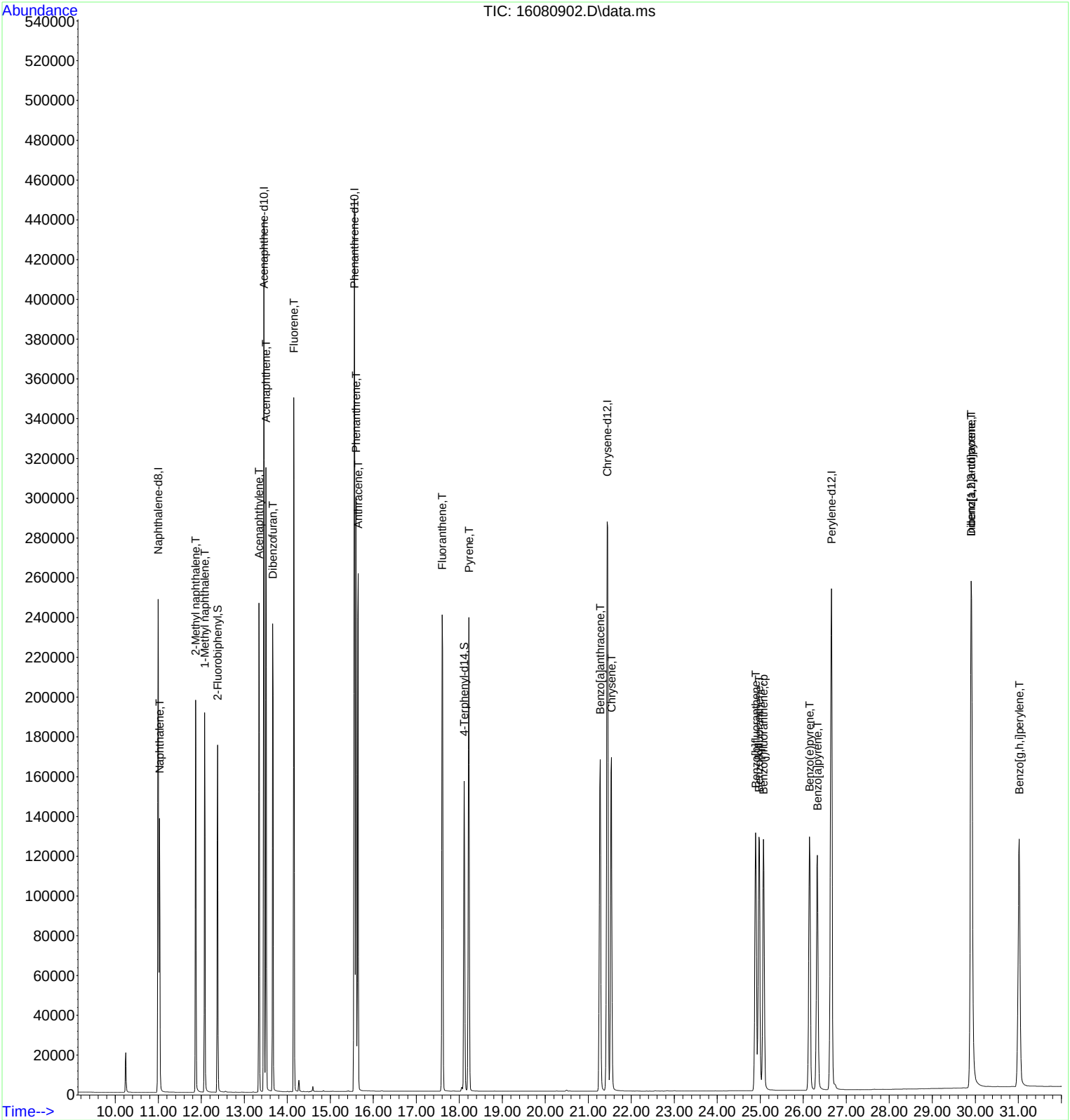
Target Compounds						Qvalue
2) Naphthalene	11.029	128	141558	1908.33	ug/kg	100
3) 2-Methyl naphthalene	11.865	142	109438	2164.34	ug/kg	98
4) 1-Methyl naphthalene	12.078	142	102075	2195.89	ug/kg	99
7) Acenaphthylene	13.341	152	220492	2060.89	ug/kg	100
8) Acenaphthene	13.504	153	137337	1964.20	ug/kg	99
9) Dibenzofuran	13.660	168	212964	1774.56	ug/kg	91
10) Fluorene	14.149	166	180100	1735.46	ug/kg	99
12) Phenanthrene	15.597	178	262686	1994.95	ug/kg	100
13) Anthracene	15.645	178	266146	1971.57	ug/kg	99
14) Fluoranthene	17.602	202	262930	1873.10	ug/kg	100
16) Pyrene	18.219	202	260250	1854.37	ug/kg	99
18) Benzo[a]anthracene	21.276	228	235607	2017.96	ug/kg	100
19) Chrysene	21.536	228	221777	2006.92	ug/kg	100
21) Benzo[b]fluoranthene	24.891	252	238823	2026.08	ug/kg	99
22) Benzo[k]fluoranthene	24.977	252	218561	2225.86	ug/kg	98
23) Benzo(j)fluoranthene	25.074	252	206528	2167.75	ug/kg	100
24) Benzo(e)pyrene	26.144	252	231972	1977.62	ug/kg	100
25) Benzo[a]pyrene	26.327	252	226691	2055.09	ug/kg	99
26) Indeno[1,2,3-cd]pyrene	29.913	276	289468	2115.43	ug/kg	98
27) Dibenz[a,h]anthracene	29.904	278	238364	2172.40	ug/kg	98
28) Benzo[g,h,i]perylene	31.022	276	246238	2027.10	ug/kg	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160809\
Data File : 16080902.D
Acq On : 9 Aug 2016 9:04 am
Operator :
Sample : ICV-160809
Misc : ICV
ALS Vial : 2 Sample Multiplier: 1

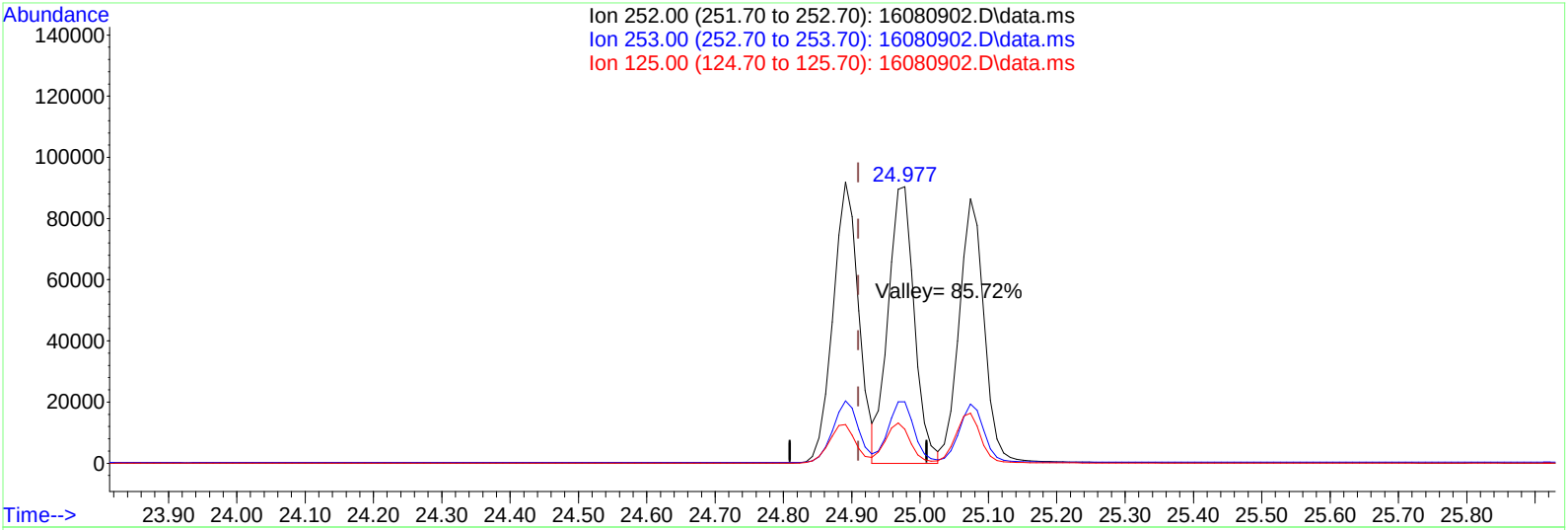
Quant Time: Aug 10 07:59:56 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration

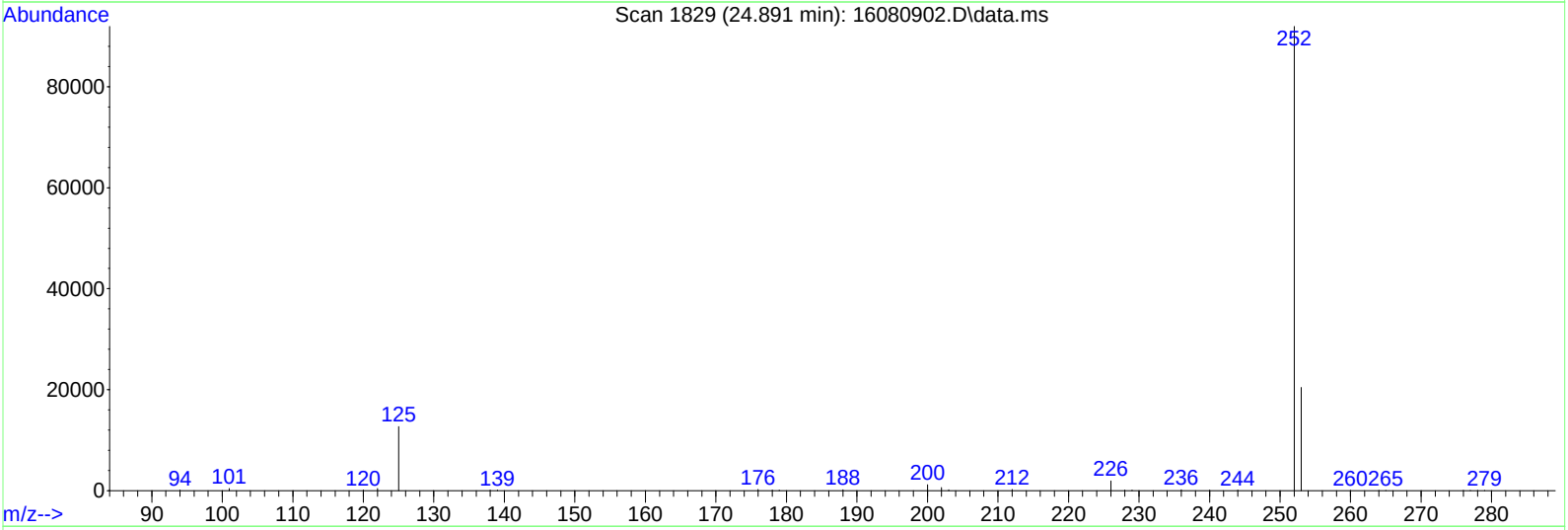


Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\160809\
Data File : 16080902.D
Acq On : 9 Aug 2016 9:04 am
Operator :
Sample : ICV-160809
Misc : ICV
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Aug 09 09:36:31 2016
Quant Method : C:\MSDCHEM\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration





TIC: 16080902.D\data.ms

(21) Benzo[b]fluoranthene (T)

24.891min (-0.019) 2026.08ug/kg

response 238823

Ion	Exp%	Act%
252.00	100	100
253.00	21.90	21.95
125.00	13.20	13.72
0.00	0.00	0.00

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160809\
Data File : 16080903.D
Acq On : 9 Aug 2016 9:44 am
Operator :
Sample : LCS-76617
Misc : LCS
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Aug 10 07:59:59 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration

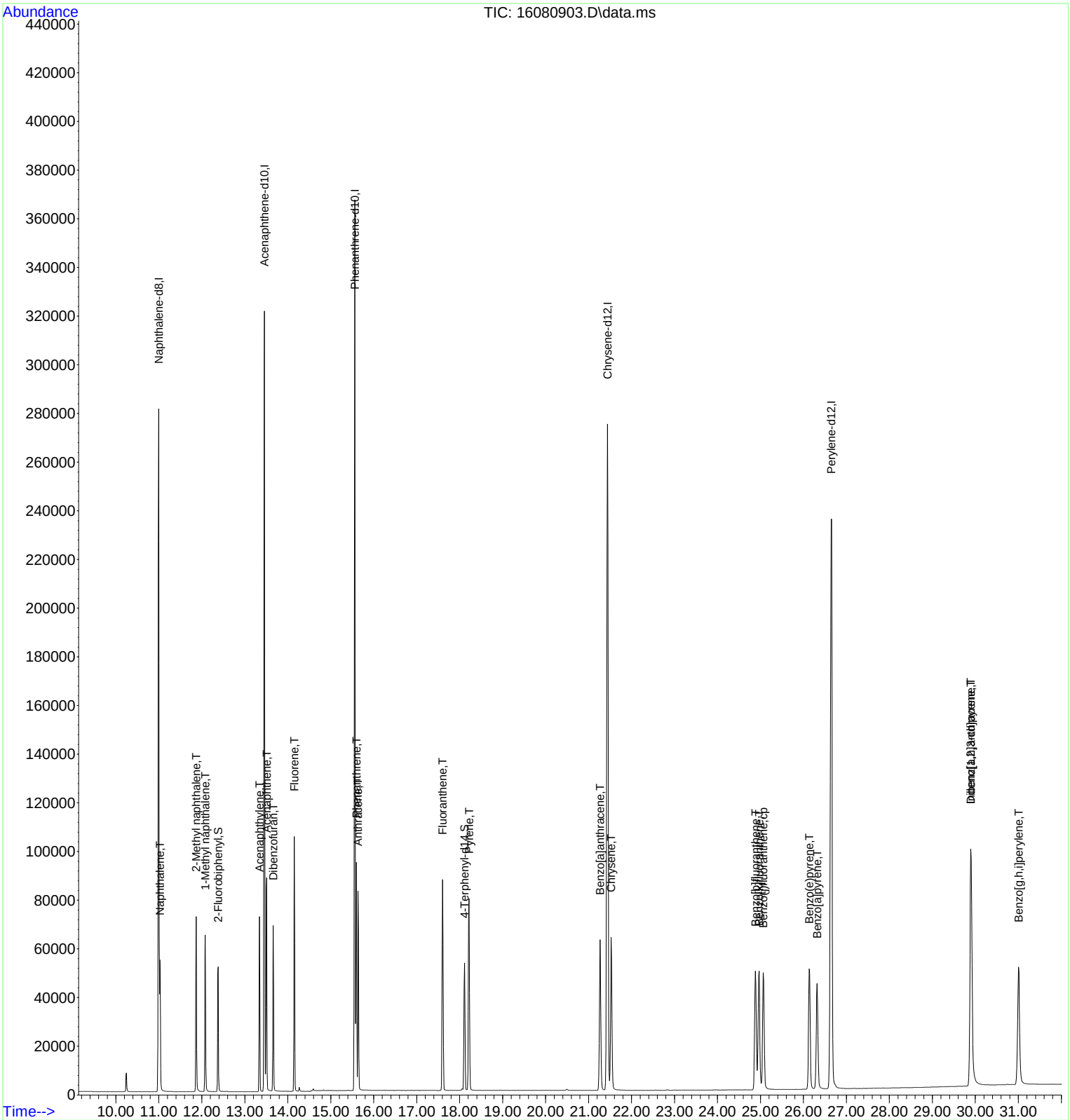
Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	10.996	136	348311	4000.00	ug/kg	132
6) Acenaphthene-d10	13.457	164	178760	4000.00	ug/kg	110
11) Phenanthrene-d10	15.559	188	408512	4000.00	ug/kg	79
17) Chrysene-d12	21.439	240	418646	4000.00	ug/kg	90
20) Perylene-d12	26.655	264	444285	4000.00	ug/kg	106
System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.379	172	45847	591.68	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 14.79%#			
15) 4-Terphenyl-d14	18.113	244	59933	834.50	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery = 20.86%#			
Target Compounds						Qvalue
2) Naphthalene	11.024	128	59082	711.10	ug/kg	99
3) 2-Methyl naphthalene	11.868	142	39486	697.20	ug/kg	99
4) 1-Methyl naphthalene	12.081	142	36530	701.62	ug/kg	99
7) Acenaphthylene	13.344	152	66099	799.24	ug/kg	99
8) Acenaphthene	13.507	153	41652	770.64	ug/kg	99
9) Dibenzofuran	13.663	168	61002	657.58	ug/kg	93
10) Fluorene	14.152	166	52686	656.77	ug/kg	100
12) Phenanthrene	15.597	178	84338	797.48	ug/kg	99
13) Anthracene	15.636	178	79823	748.58	ug/kg	100
14) Fluoranthene	17.603	202	89358	805.88	ug/kg	96
16) Pyrene	18.220	202	90129	812.99	ug/kg	95
18) Benzo[a]anthracene	21.266	228	85071	806.83	ug/kg	99
19) Chrysene	21.526	228	79921	800.85	ug/kg	100
21) Benzo[b]fluoranthene	24.881	252	90215	800.88	ug/kg	99
22) Benzo[k]fluoranthene	24.968	252	83074	885.31	ug/kg	98
23) Benzo(j)fluoranthene	25.064	252	80450	883.61	ug/kg	99
24) Benzo(e)pyrene	26.134	252	91590	817.07	ug/kg	100
25) Benzo[a]pyrene	26.318	252	84342	800.11	ug/kg	99
26) Indeno[1,2,3-cd]pyrene	29.904	276	115648	884.39	ug/kg	99
27) Dibenz[a,h]anthracene	29.894	278	93160	888.45	ug/kg	99
28) Benzo[g,h,i]perylene	31.003	276	97808	842.56	ug/kg	97

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160809\
Data File : 16080903.D
Acq On : 9 Aug 2016 9:44 am
Operator :
Sample : LCS-76617
Misc : LCS
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Aug 10 07:59:59 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160809\
Data File : 16080904.D
Acq On : 9 Aug 2016 10:24 am
Operator :
Sample : MB-76617
Misc : MBLK
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Aug 10 08:00:02 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	10.997	136	343631	4000.00	ug/kg	130
6) Acenaphthene-d10	13.451	164	163555	4000.00	ug/kg	101
11) Phenanthrene-d10	15.558	188	391797	4000.00	ug/kg	76
17) Chrysene-d12	21.439	240	423361	4000.00	ug/kg	91
20) Perylene-d12	26.645	264	427202	4000.00	ug/kg	102

System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.373	172	43440	568.25	ug/kg	-0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery = 14.21%#			
15) 4-Terphenyl-d14	18.113	244	64282	933.24	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery = 23.33%#			

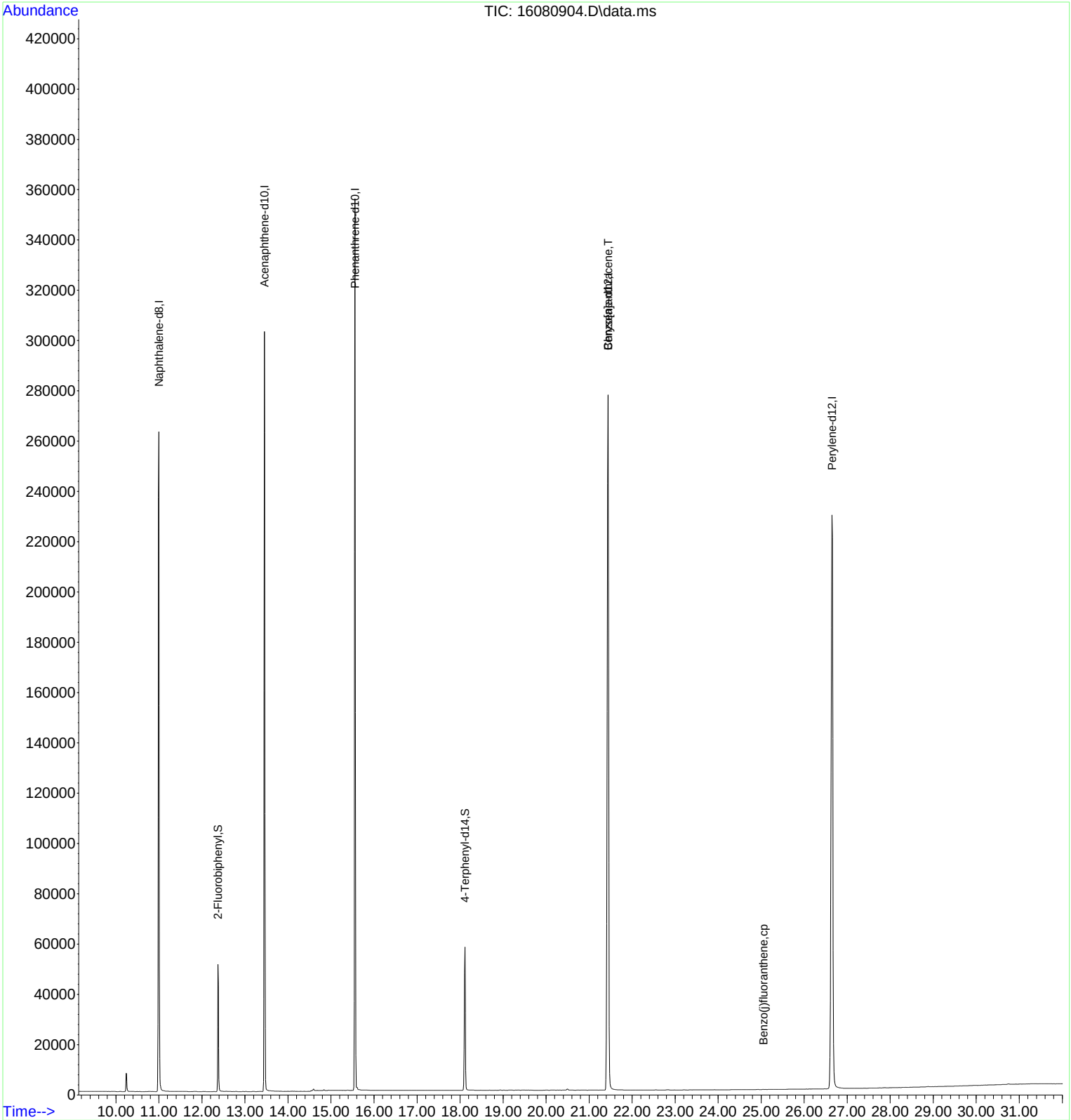
Target Compounds						Qvalue
18) Benzo[a]anthracene	21.439	228	1146	10.75	ug/kg	71
23) Benzo(j)fluoranthene	25.064	252	19	0.22	ug/kg#	1

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160809\
Data File : 16080904.D
Acq On : 9 Aug 2016 10:24 am
Operator :
Sample : MB-76617
Misc : MBLK
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Aug 10 08:00:02 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160809\
Data File : 16080905.D
Acq On : 9 Aug 2016 11:05 am
Operator :
Sample : 1607317-27A
Misc : SAMP
ALS Vial : 5 Sample Multiplier: 10

Quant Time: Aug 10 08:00:41 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	10.994	136	323946	4000.00	ug/kg	122
6) Acenaphthene-d10	13.455	164	227319	4000.00	ug/kg	140
11) Phenanthrene-d10	15.558	188	500870	4000.00	ug/kg	97
17) Chrysene-d12	21.438	240	486177	4000.00	ug/kg	105
20) Perylene-d12	26.654	264	485046	4000.00	ug/kg	115

System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.384	172	5262	73.02	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.83%#		
15) 4-Terphenyl-d14	18.112	244	6452	73.27	ug/kg	-0.01
Spiked Amount 4000.000	Range 50 - 135		Recovery =	1.83%#		

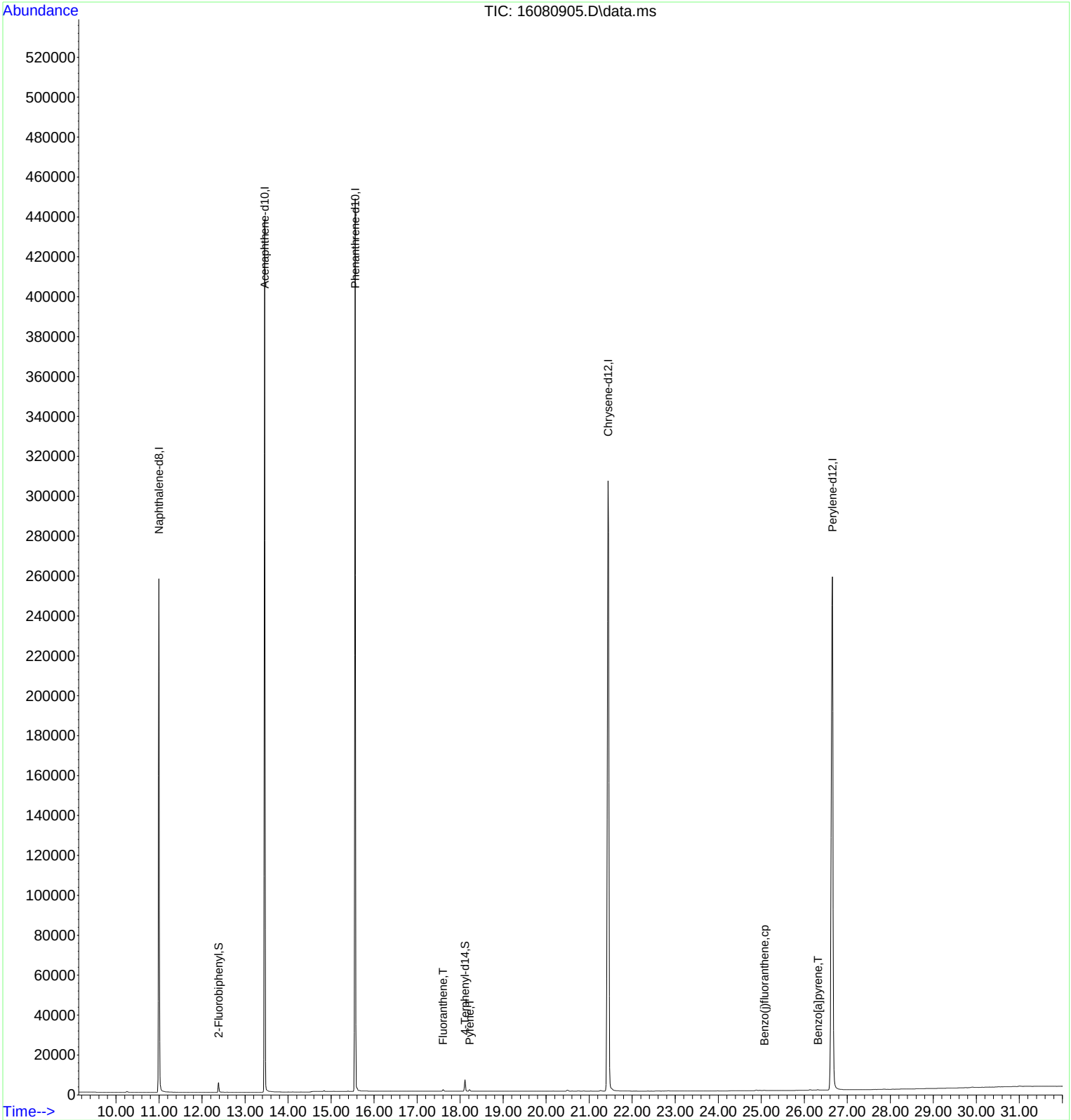
Target Compounds						Qvalue
14) Fluoranthene	17.601	202	955	7.02	ug/kg	98
16) Pyrene	18.218	202	879	6.47	ug/kg	100
23) Benzo(j)fluoranthene	25.073	252	257	2.59	ug/kg#	77
25) Benzo[a]pyrene	26.316	252	587	5.10	ug/kg	95

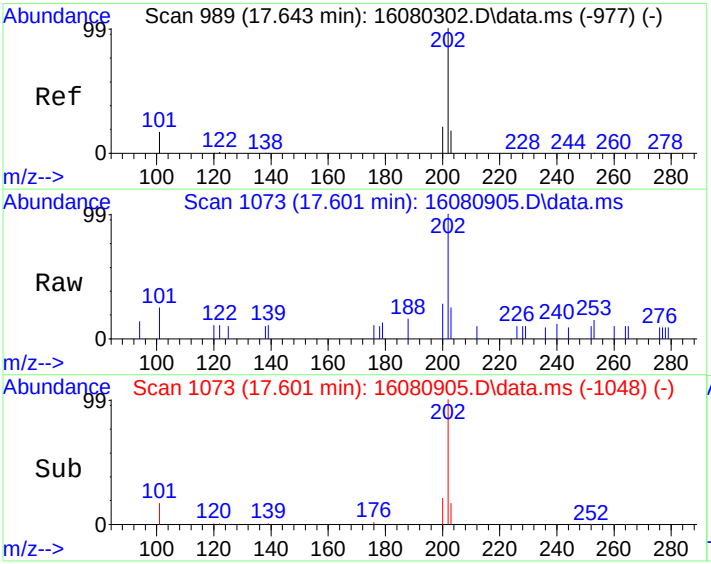
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160809\
Data File : 16080905.D
Acq On : 9 Aug 2016 11:05 am
Operator :
Sample : 1607317-27A
Misc : SAMP
ALS Vial : 5 Sample Multiplier: 10

Quant Time: Aug 10 08:00:41 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration

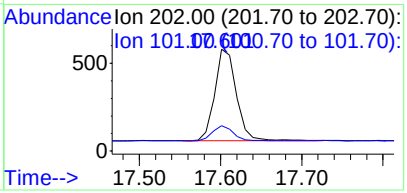


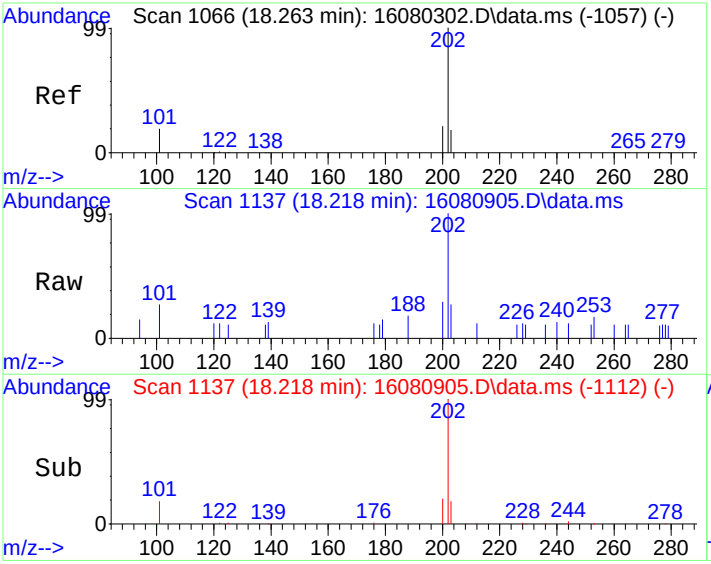


#14
Fluoranthene
Concen: 7.02 ug/kg
RT: 17.601 min Scan# 1073
Delta R.T. -0.010 min
Lab File: 16080905.D
Acq: 9 Aug 2016 11:05 am

Tgt Ion:202 Resp: 955

Ion	Ratio	Lower	Upper
202	100		
101	16.5	0.0	37.2

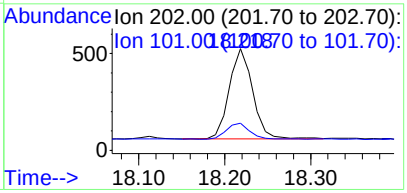


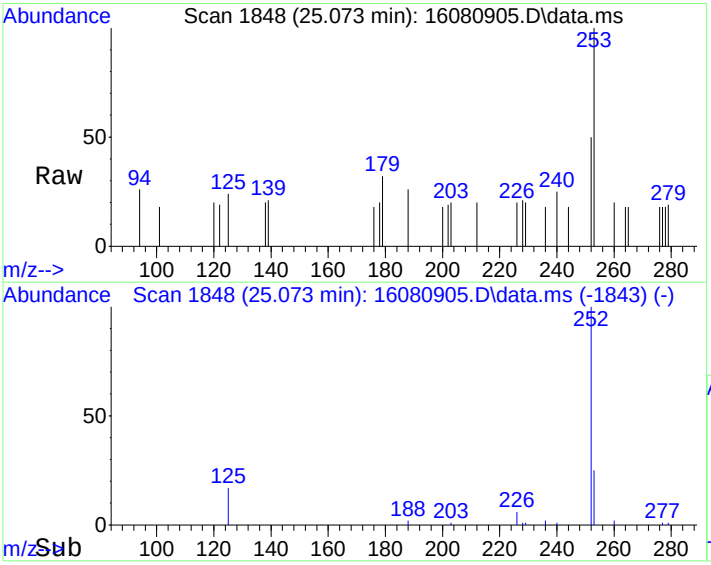


#16
Pyrene
Concen: 6.47 ug/kg
RT: 18.218 min Scan# 1137
Delta R.T. -0.010 min
Lab File: 16080905.D
Acq: 9 Aug 2016 11:05 am

Tgt Ion:202 Resp: 879

Ion	Ratio	Lower	Upper
202	100		
101	18.0	0.0	38.0

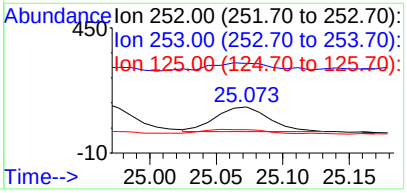


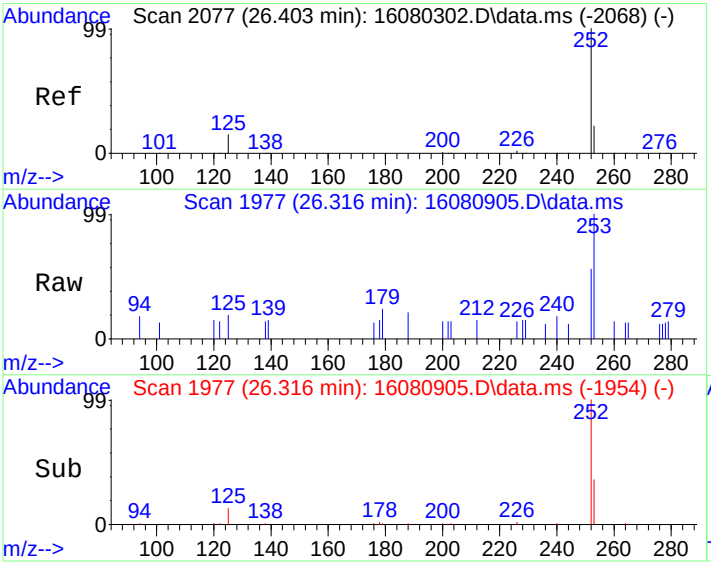


#23
Benzo(j)fluoranthene
Concen: 2.59 ug/kg
RT: 25.073 min Scan# 1848
Delta R.T. -0.020 min
Lab File: 16080905.D
Acq: 9 Aug 2016 11:05 am

Tgt Ion:252 Resp: 257

Ion	Ratio	Lower	Upper
252	100		
253	42.0	1.9	41.9#
125	19.1	0.0	39.4

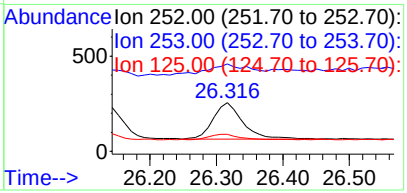




#25
Benzo[a]pyrene
Concen: 5.10 ug/kg
RT: 26.316 min Scan# 1977
Delta R.T. -0.030 min
Lab File: 16080905.D
Acq: 9 Aug 2016 11:05 am

Tgt Ion:252 Resp: 587

Ion	Ratio	Lower	Upper
252	100		
253	25.7	1.9	41.9
125	14.1	0.0	33.5



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160809\
Data File : 16080906.D
Acq On : 9 Aug 2016 11:45 am
Operator :
Sample : 1607317-28A
Misc : SAMP
ALS Vial : 6 Sample Multiplier: 10

Quant Time: Aug 10 08:00:46 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	10.997	136	314555	4000.00	ug/kg	119
6) Acenaphthene-d10	13.451	164	220978	4000.00	ug/kg	136
11) Phenanthrene-d10	15.559	188	474883	4000.00	ug/kg	92
17) Chrysene-d12	21.440	240	446558	4000.00	ug/kg	96
20) Perylene-d12	26.646	264	447857	4000.00	ug/kg	107

System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.380	172	5513	78.78	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 1.97%#			
15) 4-Terphenyl-d14	18.114	244	6665	79.83	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery = 2.00%#			

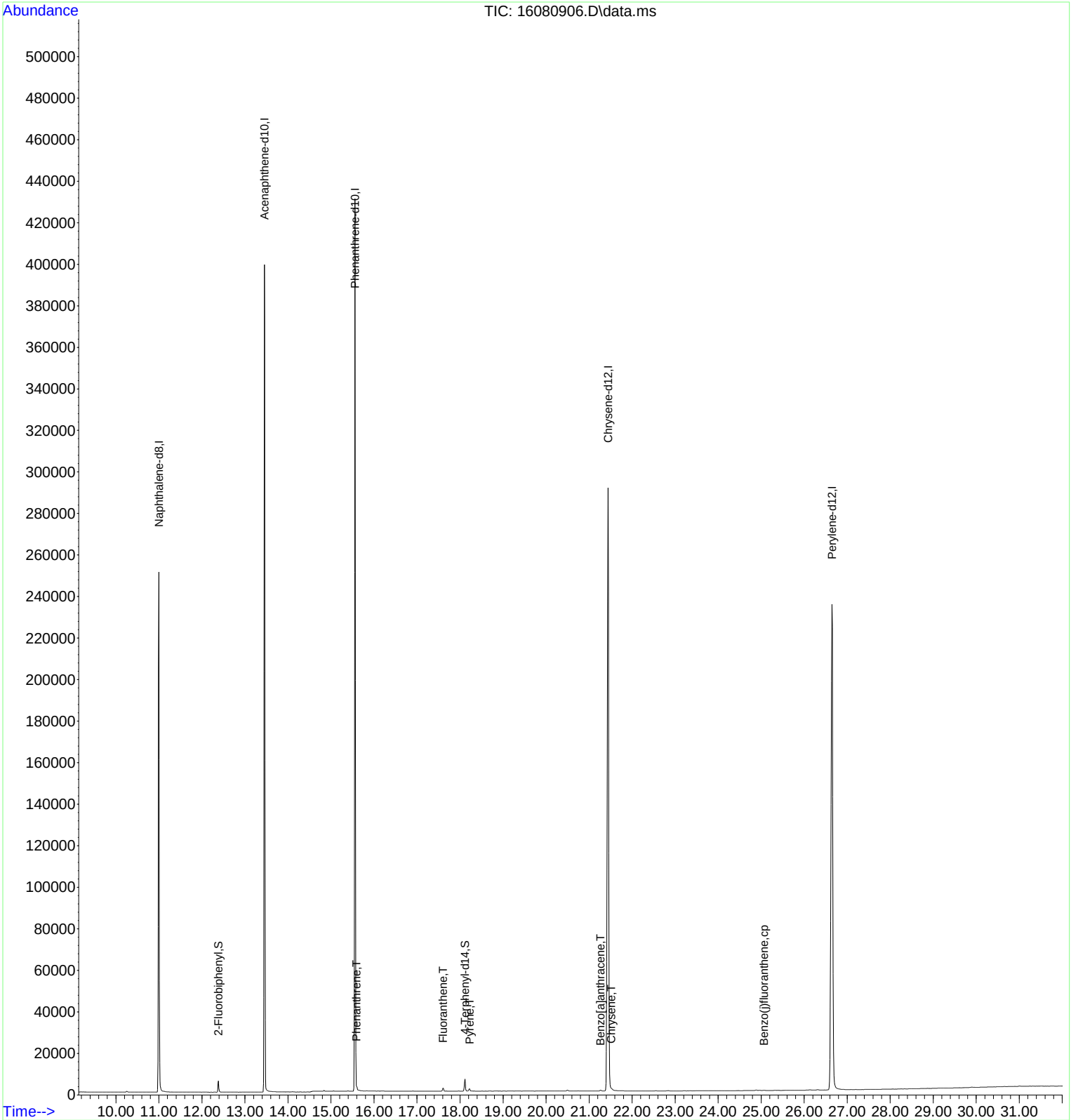
Target Compounds						Qvalue
12) Phenanthrene	15.598	178	1318	8.29	ug/kg	97
14) Fluoranthene	17.603	202	1724	13.37	ug/kg	97
16) Pyrene	18.220	202	1328	10.30	ug/kg	97
18) Benzo[a]anthracene	21.266	228	631	5.61	ug/kg	99
19) Chrysene	21.526	228	658	6.18	ug/kg	97
23) Benzo(j)fluoranthene	25.065	252	211	2.30	ug/kg#	61

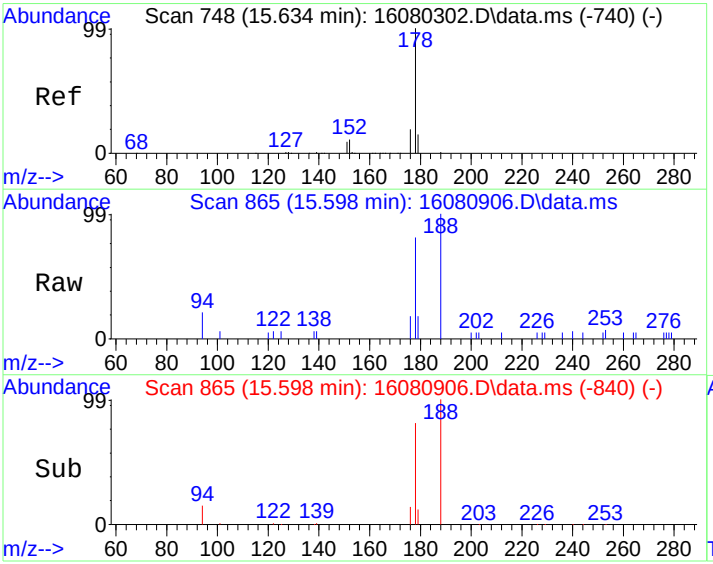
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160809\
Data File : 16080906.D
Acq On : 9 Aug 2016 11:45 am
Operator :
Sample : 1607317-28A
Misc : SAMP
ALS Vial : 6 Sample Multiplier: 10

Quant Time: Aug 10 08:00:46 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration

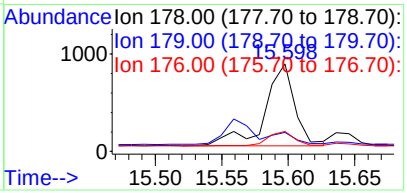


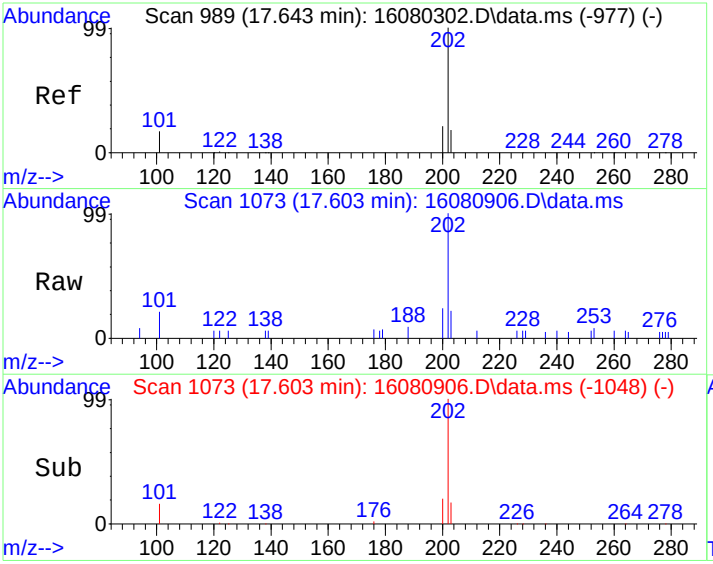


#12
Phenanthrene
Concen: 8.29 ug/kg
RT: 15.598 min Scan# 865
Delta R.T. -0.008 min
Lab File: 16080906.D
Acq: 9 Aug 2016 11:45 am

Tgt Ion:178 Resp: 1318

Ion	Ratio	Lower	Upper
178	100		
179	14.6	0.0	35.7
176	17.4	0.0	38.8

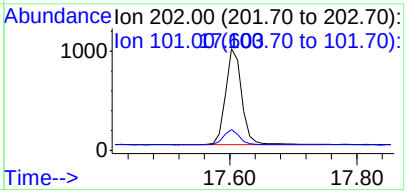


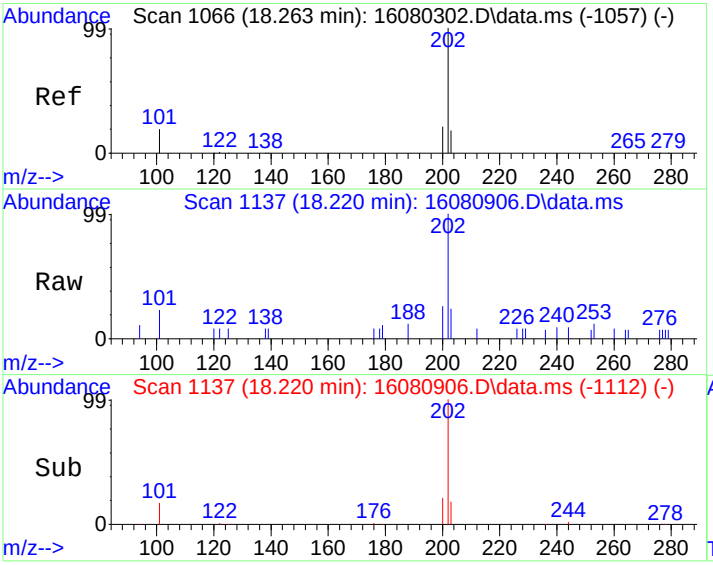


#14
Fluoranthene
Concen: 13.37 ug/kg
RT: 17.603 min Scan# 1073
Delta R.T. -0.009 min
Lab File: 16080906.D
Acq: 9 Aug 2016 11:45 am

Tgt Ion:202 Resp: 1724

Ion	Ratio	Lower	Upper
202	100		
101	15.7	0.0	37.2

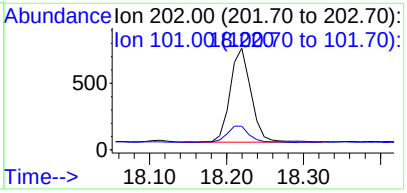


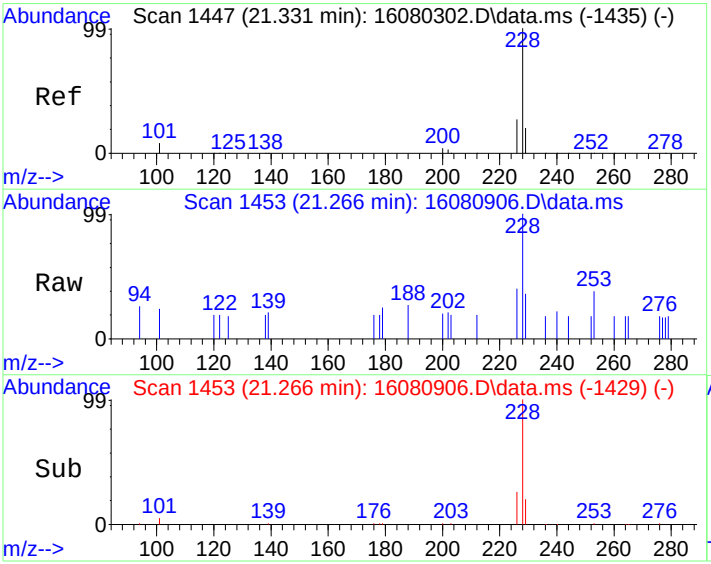


#16
Pyrene
Concen: 10.30 ug/kg
RT: 18.220 min Scan# 1137
Delta R.T. -0.009 min
Lab File: 16080906.D
Acq: 9 Aug 2016 11:45 am

Tgt Ion:202 Resp: 1328

Ion	Ratio	Lower	Upper
202	100		
101	16.9	0.0	38.0

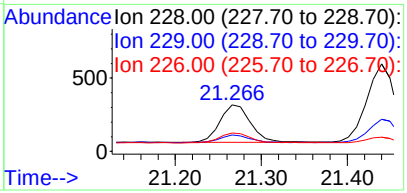


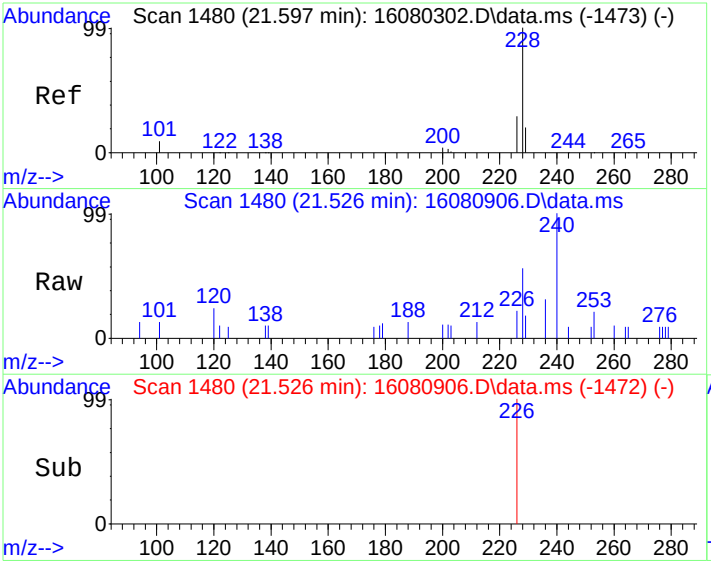


#18
Benzo[a]anthracene
Concen: 5.61 ug/kg
RT: 21.266 min Scan# 1453
Delta R.T. -0.019 min
Lab File: 16080906.D
Acq: 9 Aug 2016 11:45 am

Tgt Ion:228 Resp: 631

Ion	Ratio	Lower	Upper
228	100		
229	21.1	0.0	39.9
226	27.0	6.7	46.7

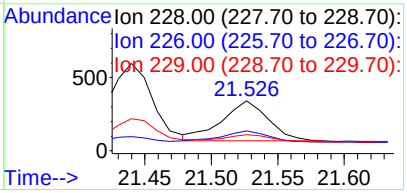


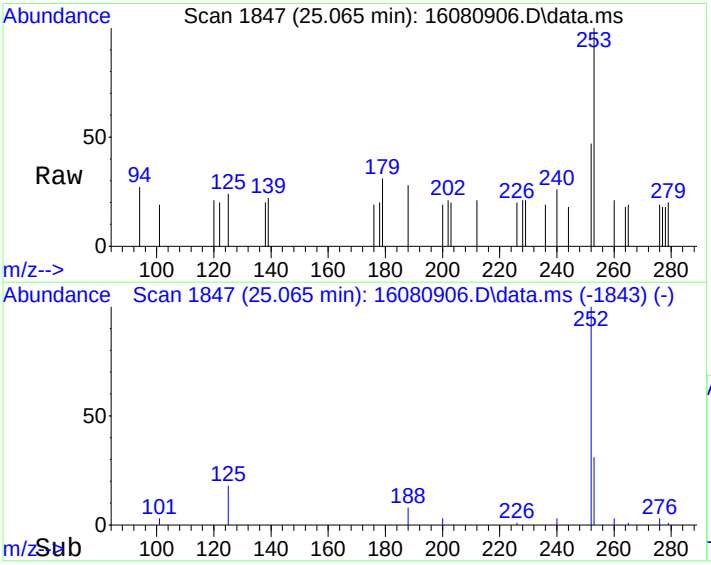


#19
Chrysene
Concen: 6.18 ug/kg
RT: 21.526 min Scan# 1480
Delta R.T. -0.019 min
Lab File: 16080906.D
Acq: 9 Aug 2016 11:45 am

Tgt Ion:228 Resp: 658

Ion	Ratio	Lower	Upper
228	100		
226	28.3	9.3	49.3
229	17.6	0.0	39.8

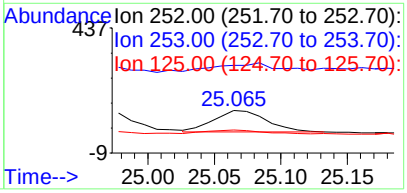




#23
Benzo(j)fluoranthene
Concen: 2.30 ug/kg
RT: 25.065 min Scan# 1847
Delta R.T. -0.028 min
Lab File: 16080906.D
Acq: 9 Aug 2016 11:45 am

Tgt Ion:252 Resp: 211

Ion	Ratio	Lower	Upper
252	100		
253	56.4	1.9	41.9#
125	18.5	0.0	39.4



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160809\
Data File : 16080907.D
Acq On : 9 Aug 2016 12:25 pm
Operator :
Sample : 1607317-29A
Misc : SAMP
ALS Vial : 7 Sample Multiplier: 10

Quant Time: Aug 10 08:00:52 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	10.993	136	319603	4000.00	ug/kg	121
6) Acenaphthene-d10	13.454	164	225746	4000.00	ug/kg	139
11) Phenanthrene-d10	15.558	188	490698	4000.00	ug/kg	95
17) Chrysene-d12	21.439	240	468942	4000.00	ug/kg	101
20) Perylene-d12	26.645	264	461101	4000.00	ug/kg	110

System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.383	172	5460	76.79	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 1.92%#			
15) 4-Terphenyl-d14	18.113	244	6768	78.45	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery = 1.96%#			

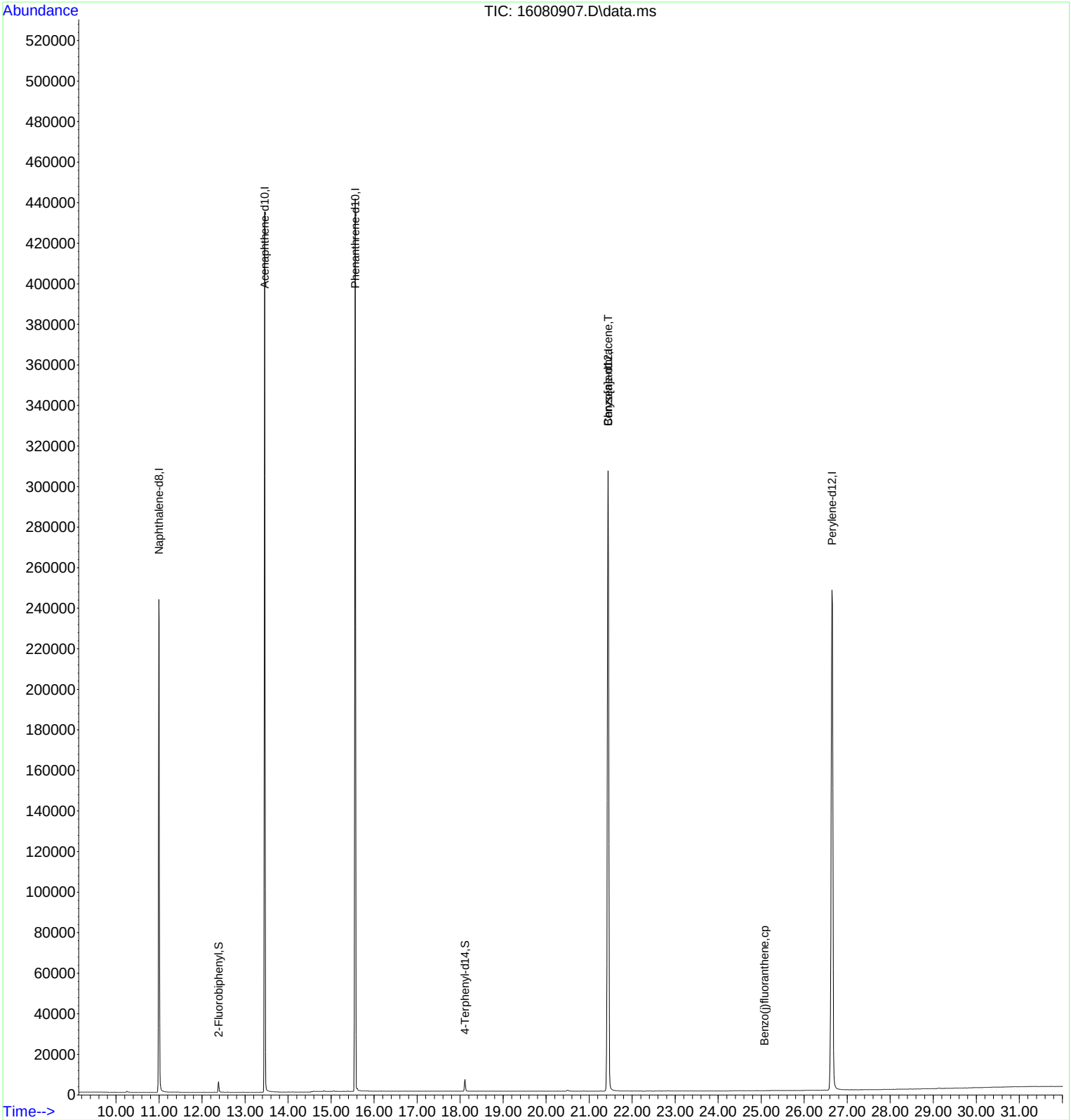
Target Compounds						Qvalue
18) Benzo[a]anthracene	21.439	228	1261	10.68	ug/kg	72
23) Benzo(j)fluoranthene	25.074	252	15	0.16	ug/kg#	62

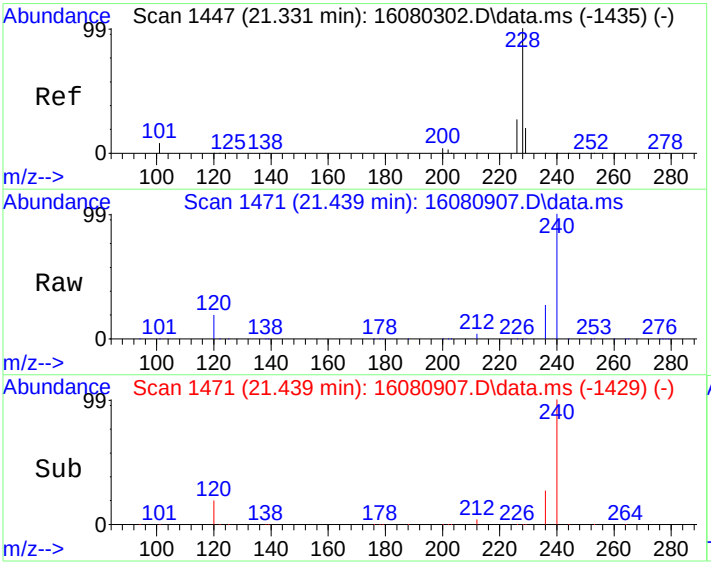
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160809\
Data File : 16080907.D
Acq On : 9 Aug 2016 12:25 pm
Operator :
Sample : 1607317-29A
Misc : SAMP
ALS Vial : 7 Sample Multiplier: 10

Quant Time: Aug 10 08:00:52 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration

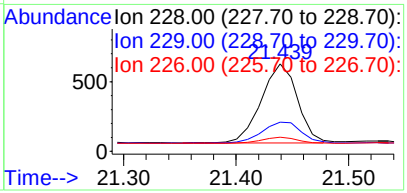


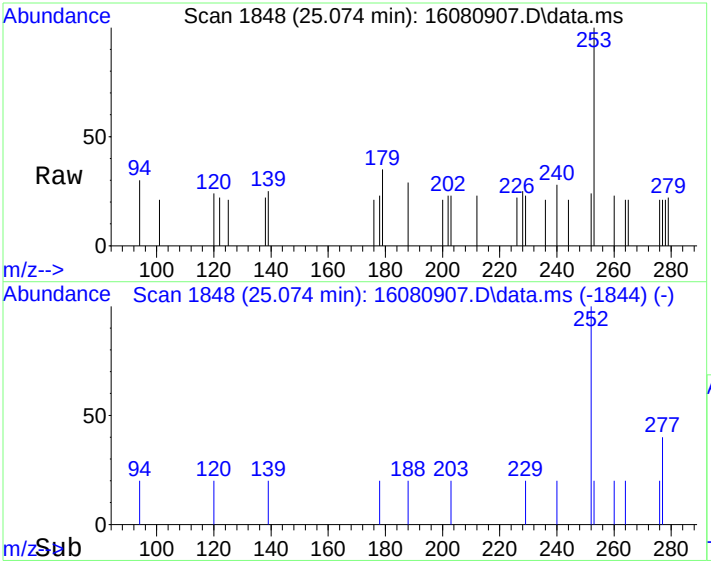


#18
Benzo[a]anthracene
Concen: 10.68 ug/kg
RT: 21.439 min Scan# 1471
Delta R.T. 0.154 min
Lab File: 16080907.D
Acq: 9 Aug 2016 12:25 pm

Tgt Ion:228 Resp: 1261

Ion	Ratio	Lower	Upper
228	100		
229	26.6	0.0	39.9
226	7.4	6.7	46.7

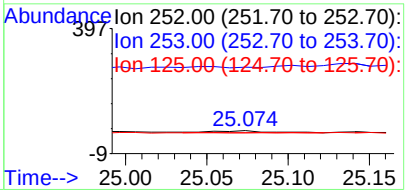




#23
Benzo(j)fluoranthene
Concen: 0.16 ug/kg
RT: 25.074 min Scan# 1848
Delta R.T. -0.019 min
Lab File: 16080907.D
Acq: 9 Aug 2016 12:25 pm

Tgt Ion:252 Resp: 15

Ion	Ratio	Lower	Upper
252	100		
253	0.0	1.9	41.9#
125	6.7	0.0	39.4



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160809\
Data File : 16080908.D
Acq On : 9 Aug 2016 1:05 pm
Operator :
Sample : 1607317-30A
Misc : SAMP
ALS Vial : 8 Sample Multiplier: 10

Quant Time: Aug 10 08:00:56 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	10.994	136	308295	4000.00	ug/kg	116
6) Acenaphthene-d10	13.455	164	237744	4000.00	ug/kg	147
11) Phenanthrene-d10	15.557	188	506801	4000.00	ug/kg	98
17) Chrysene-d12	21.438	240	447150	4000.00	ug/kg	97
20) Perylene-d12	26.653	264	438978	4000.00	ug/kg	104

System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.384	172	5443	79.36	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.98%#		
15) 4-Terphenyl-d14	18.112	244	6299	70.70	ug/kg	-0.01
Spiked Amount 4000.000	Range 50 - 135		Recovery =	1.77%#		

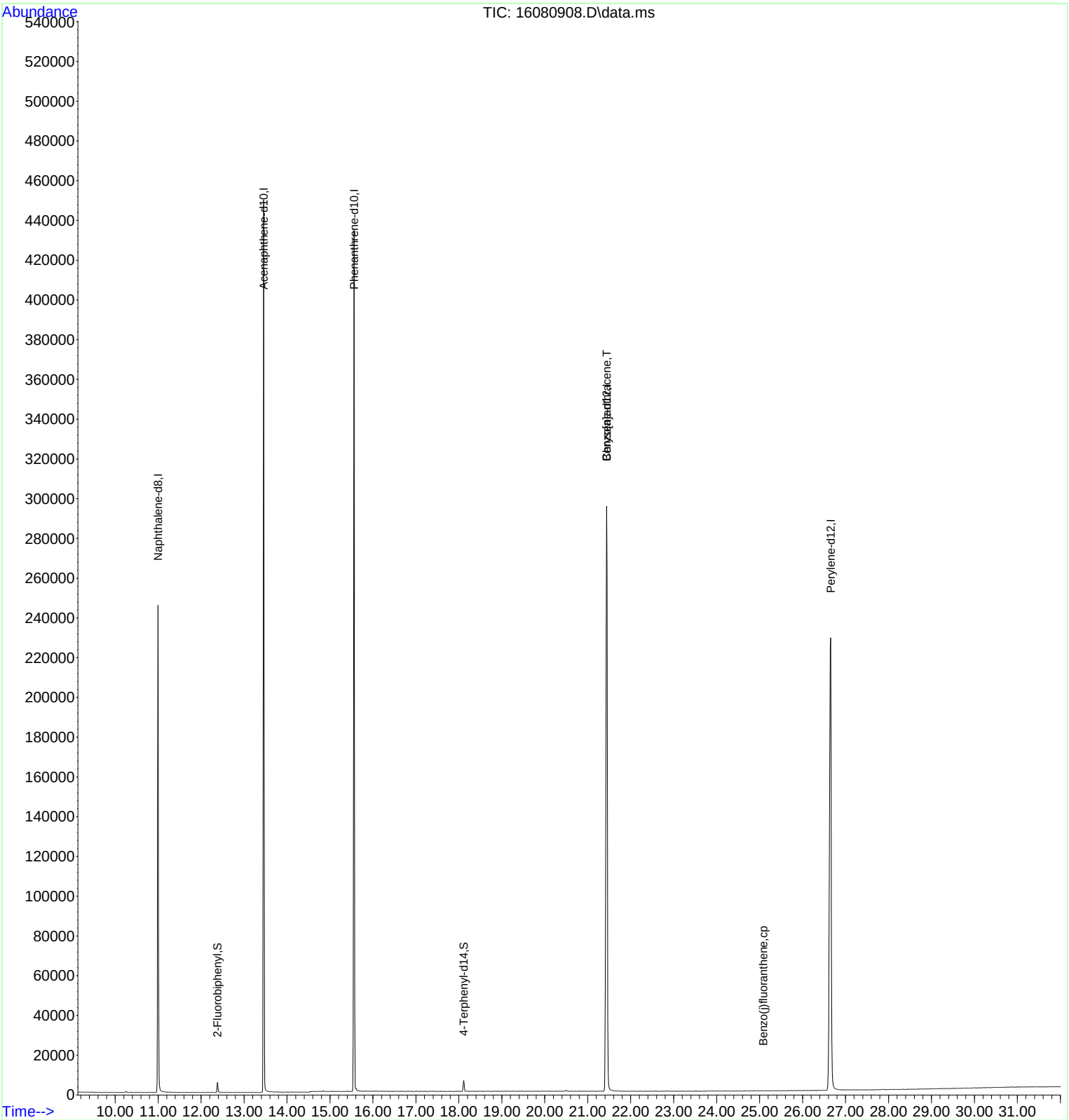
Target Compounds						Qvalue
18) Benzo[a]anthracene	21.438	228	1211	10.75	ug/kg	72
23) Benzo(j)fluoranthene	25.091	252	1	0.01	ug/kg#	1

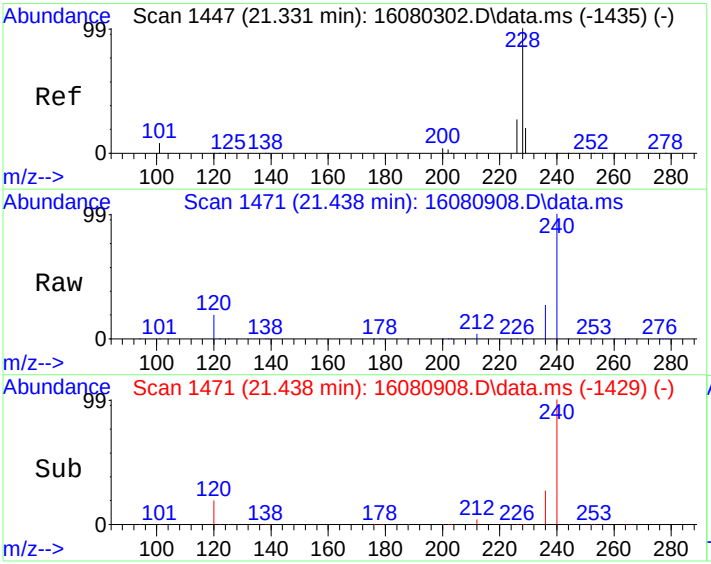
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160809\
Data File : 16080908.D
Acq On : 9 Aug 2016 1:05 pm
Operator :
Sample : 1607317-30A
Misc : SAMP
ALS Vial : 8 Sample Multiplier: 10

Quant Time: Aug 10 08:00:56 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration

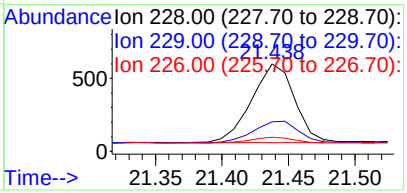


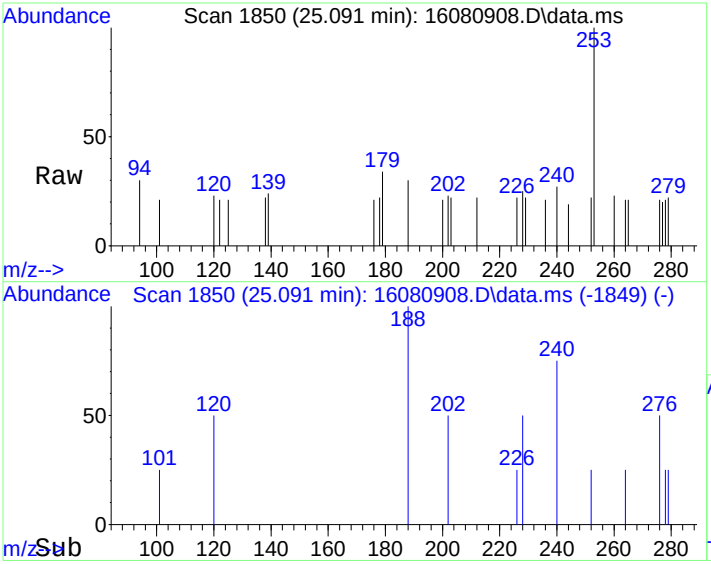


#18
Benzo[a]anthracene
Concen: 10.75 ug/kg
RT: 21.438 min Scan# 1471
Delta R.T. 0.153 min
Lab File: 16080908.D
Acq: 9 Aug 2016 1:05 pm

Tgt Ion:228 Resp: 1211

Ion	Ratio	Lower	Upper
228	100		
229	26.7	0.0	39.9
226	7.4	6.7	46.7

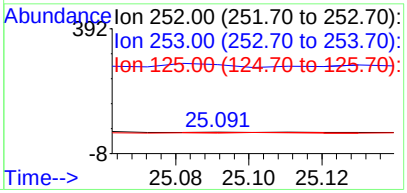




#23
Benzo(j)fluoranthene
Concen: 0.01 ug/kg
RT: 25.091 min Scan# 1850
Delta R.T. -0.001 min
Lab File: 16080908.D
Acq: 9 Aug 2016 1:05 pm

Tgt Ion:252 Resp: 1

Ion	Ratio	Lower	Upper
252	100		
253	3800.0	1.9	41.9#
125	200.0	0.0	39.4#



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160809\
Data File : 16080909.D
Acq On : 9 Aug 2016 1:45 pm
Operator :
Sample : 1607317-31A
Misc : SAMP
ALS Vial : 9 Sample Multiplier: 10

Quant Time: Aug 10 08:01:00 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	10.996	136	322177	4000.00	ug/kg	122
6) Acenaphthene-d10	13.457	164	220952	4000.00	ug/kg	136
11) Phenanthrene-d10	15.558	188	489441	4000.00	ug/kg	95
17) Chrysene-d12	21.439	240	475173	4000.00	ug/kg	103
20) Perylene-d12	26.654	264	465201	4000.00	ug/kg	111

System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.379	172	5572	77.74	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 1.94%#			
15) 4-Terphenyl-d14	18.113	244	6940	80.65	ug/kg	-0.01
Spiked Amount 4000.000	Range 50 - 135		Recovery = 2.02%#			

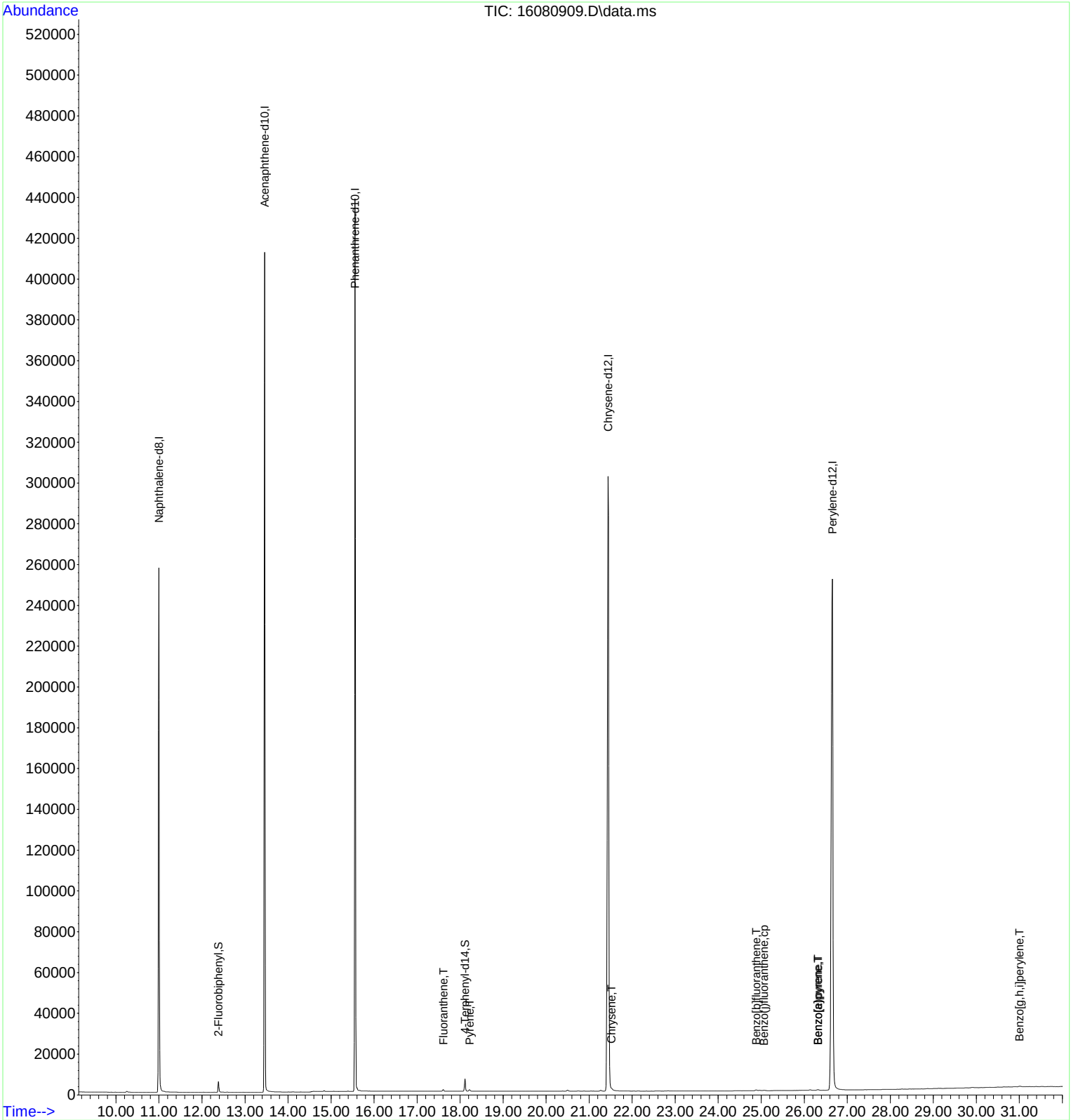
Target Compounds						Qvalue
14) Fluoranthene	17.611	202	995	7.49	ug/kg	92
16) Pyrene	18.219	202	917	6.90	ug/kg	98
19) Chrysene	21.525	228	713	6.29	ug/kg	99
21) Benzo[b]fluoranthene	24.880	252	763	6.47	ug/kg	98
23) Benzo(j)fluoranthene	25.073	252	306	3.21	ug/kg	85
24) Benzo(e)pyrene	26.317	252	650	5.54	ug/kg	93
25) Benzo[a]pyrene	26.317	252	721	6.53	ug/kg	96
28) Benzo[g,h,i]perylene	31.002	276	751	6.18	ug/kg	97

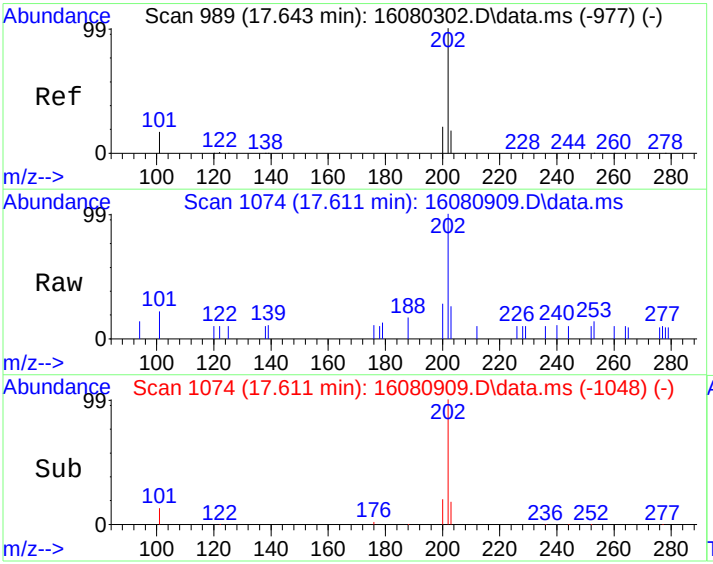
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160809\
Data File : 16080909.D
Acq On : 9 Aug 2016 1:45 pm
Operator :
Sample : 1607317-31A
Misc : SAMP
ALS Vial : 9 Sample Multiplier: 10

Quant Time: Aug 10 08:01:00 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration

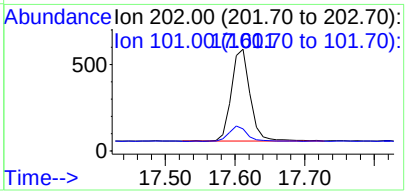


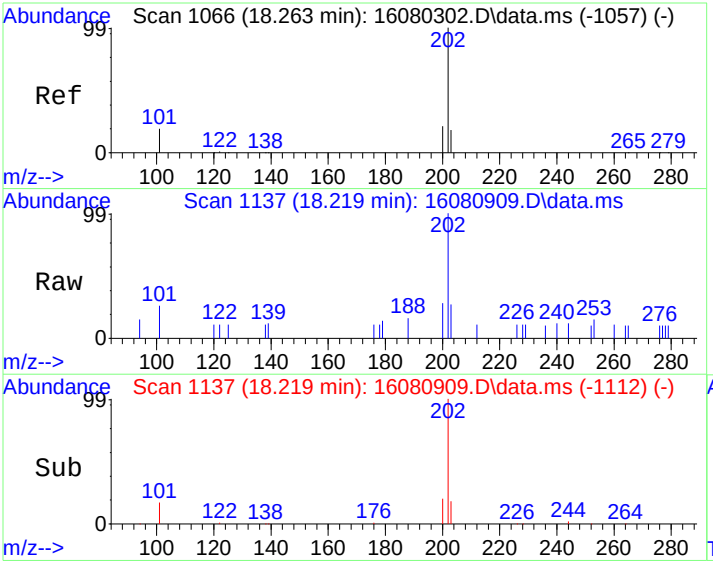


#14
Fluoranthene
Concen: 7.49 ug/kg
RT: 17.611 min Scan# 1074
Delta R.T. -0.000 min
Lab File: 16080909.D
Acq: 9 Aug 2016 1:45 pm

Tgt Ion:202 Resp: 995

Ion	Ratio	Lower	Upper
202	100		
101	13.5	0.0	37.2

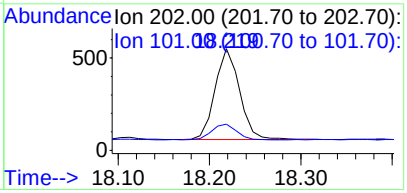


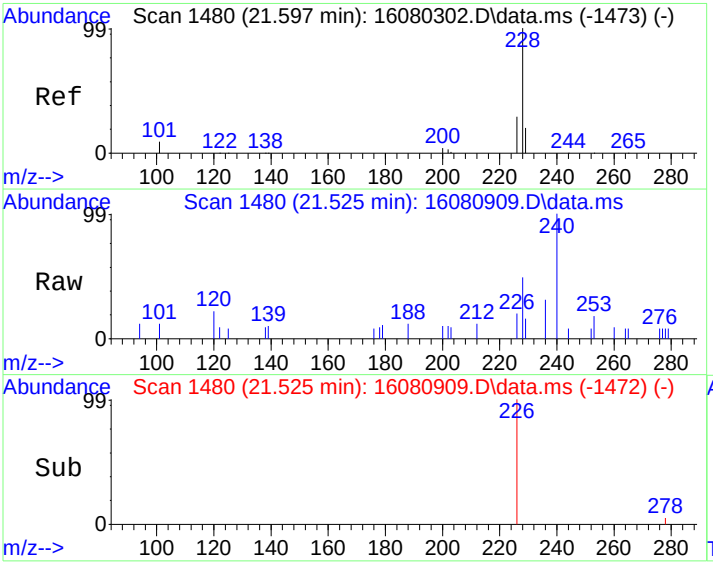


#16
Pyrene
Concen: 6.90 ug/kg
RT: 18.219 min Scan# 1137
Delta R.T. -0.010 min
Lab File: 16080909.D
Acq: 9 Aug 2016 1:45 pm

Tgt Ion:202 Resp: 917

Ion	Ratio	Lower	Upper
202	100		
101	17.0	0.0	38.0

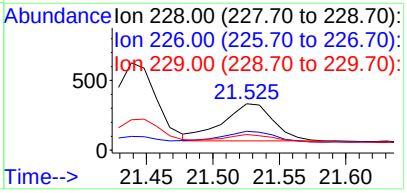


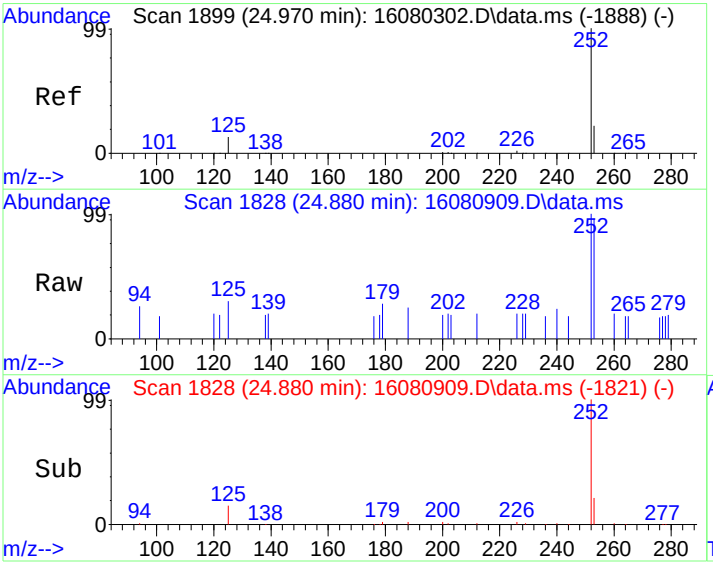


#19
Chrysene
Concen: 6.29 ug/kg
RT: 21.525 min Scan# 1480
Delta R.T. -0.020 min
Lab File: 16080909.D
Acq: 9 Aug 2016 1:45 pm

Tgt Ion:228 Resp: 713

Ion	Ratio	Lower	Upper
228	100		
226	29.7	9.3	49.3
229	19.5	0.0	39.8

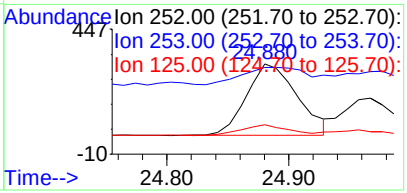


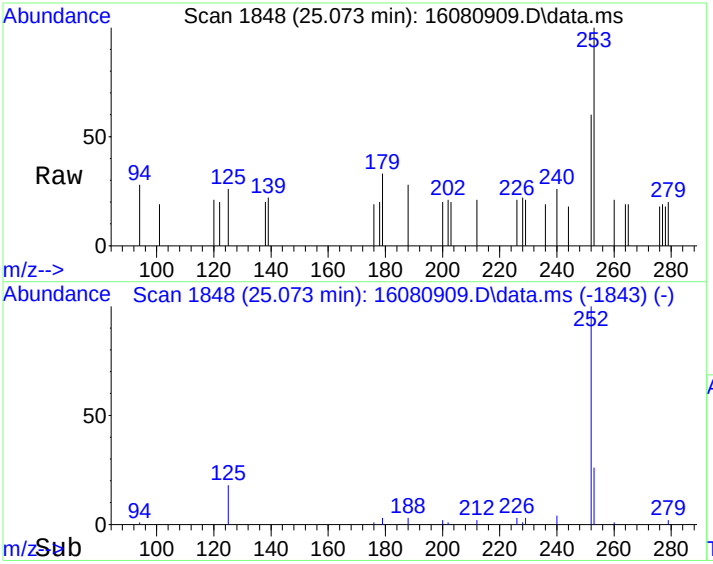


#21
Benzo[b]fluoranthene
Concen: 6.47 ug/kg
RT: 24.880 min Scan# 1828
Delta R.T. -0.029 min
Lab File: 16080909.D
Acq: 9 Aug 2016 1:45 pm

Tgt Ion:252 Resp: 763

Ion	Ratio	Lower	Upper
252	100		
253	21.4	1.9	41.9
125	14.9	0.0	33.2

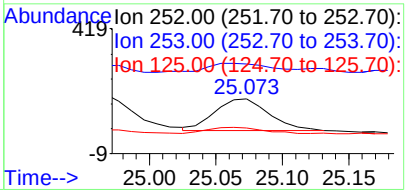


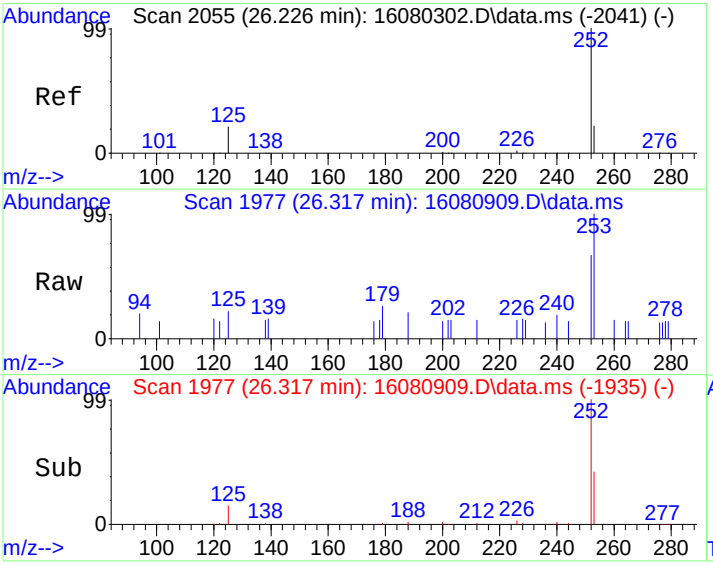


#23
Benzo(j)fluoranthene
Concen: 3.21 ug/kg
RT: 25.073 min Scan# 1848
Delta R.T. -0.020 min
Lab File: 16080909.D
Acq: 9 Aug 2016 1:45 pm

Tgt Ion:252 Resp: 306

Ion	Ratio	Lower	Upper
252	100		
253	34.3	1.9	41.9
125	18.6	0.0	39.4

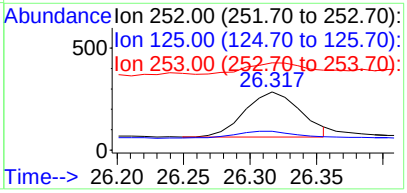


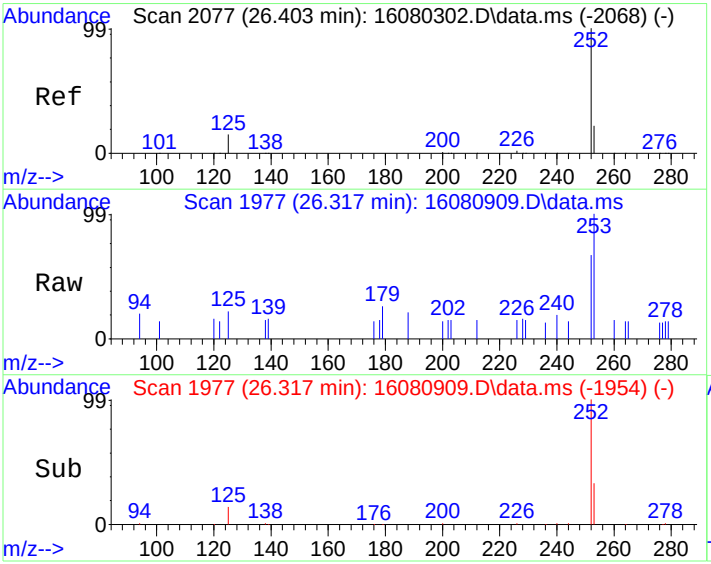


#24
Benzo(e)pyrene
Concen: 5.54 ug/kg
RT: 26.317 min Scan# 1977
Delta R.T. 0.154 min
Lab File: 16080909.D
Acq: 9 Aug 2016 1:45 pm

Tgt Ion:252 Resp: 650

Ion	Ratio	Lower	Upper
252	100		
125	16.8	0.5	40.5
253	25.4	2.1	42.1

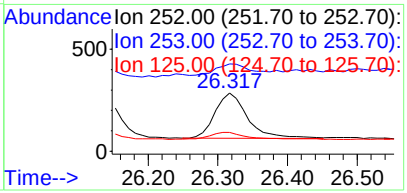


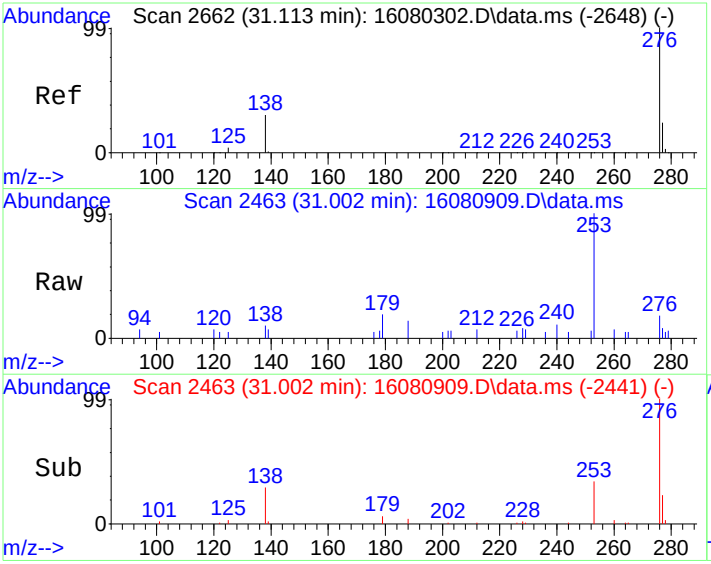


#25
Benzo[a]pyrene
Concen: 6.53 ug/kg
RT: 26.317 min Scan# 1977
Delta R.T. -0.029 min
Lab File: 16080909.D
Acq: 9 Aug 2016 1:45 pm

Tgt Ion:252 Resp: 721

Ion	Ratio	Lower	Upper
252	100		
253	23.5	1.9	41.9
125	15.4	0.0	33.5

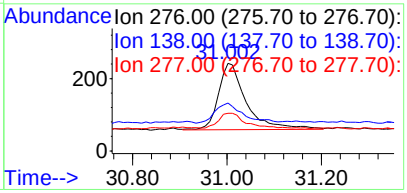




#28
Benzo[g,h,i]perylene
Concen: 6.18 ug/kg
RT: 31.002 min Scan# 2463
Delta R.T. -0.039 min
Lab File: 16080909.D
Acq: 9 Aug 2016 1:45 pm

Tgt Ion:276 Resp: 751

Ion	Ratio	Lower	Upper
276	100		
138	28.6	6.9	46.9
277	22.5	3.9	43.9



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160809\
Data File : 16080910.D
Acq On : 9 Aug 2016 2:25 pm
Operator :
Sample : 1607317-32A
Misc : SAMP
ALS Vial : 10 Sample Multiplier: 10

Quant Time: Aug 10 08:01:06 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	10.995	136	323004	4000.00	ug/kg	122
6) Acenaphthene-d10	13.456	164	223019	4000.00	ug/kg	138
11) Phenanthrene-d10	15.557	188	509227	4000.00	ug/kg	99
17) Chrysene-d12	21.448	240	477844	4000.00	ug/kg	103
20) Perylene-d12	26.654	264	471760	4000.00	ug/kg	112

System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.385	172	5405	75.22	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 1.88%#			
15) 4-Terphenyl-d14	18.112	244	6831	76.30	ug/kg	-0.01
Spiked Amount 4000.000	Range 50 - 135		Recovery = 1.91%#			

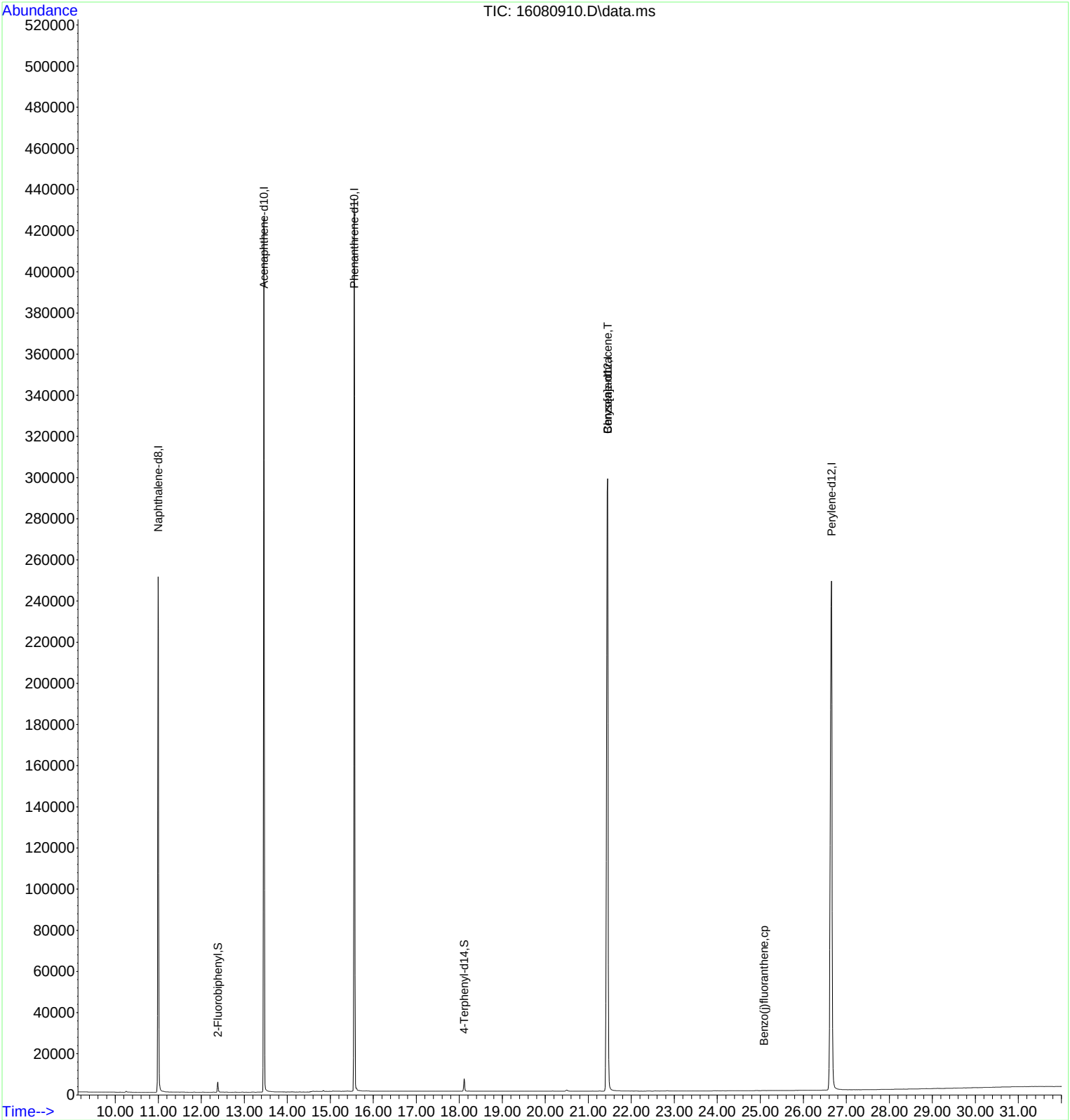
Target Compounds						Qvalue
18) Benzo[a]anthracene	21.448	228	1305	10.84	ug/kg	69
23) Benzo(j)fluoranthene	25.082	252	6	0.06	ug/kg#	27

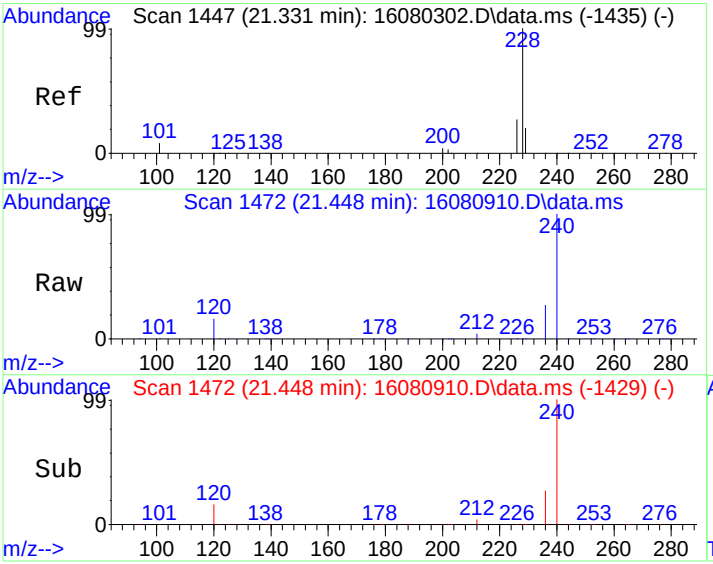
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160809\
Data File : 16080910.D
Acq On : 9 Aug 2016 2:25 pm
Operator :
Sample : 1607317-32A
Misc : SAMP
ALS Vial : 10 Sample Multiplier: 10

Quant Time: Aug 10 08:01:06 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration

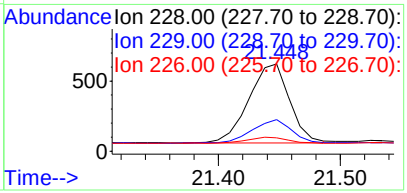


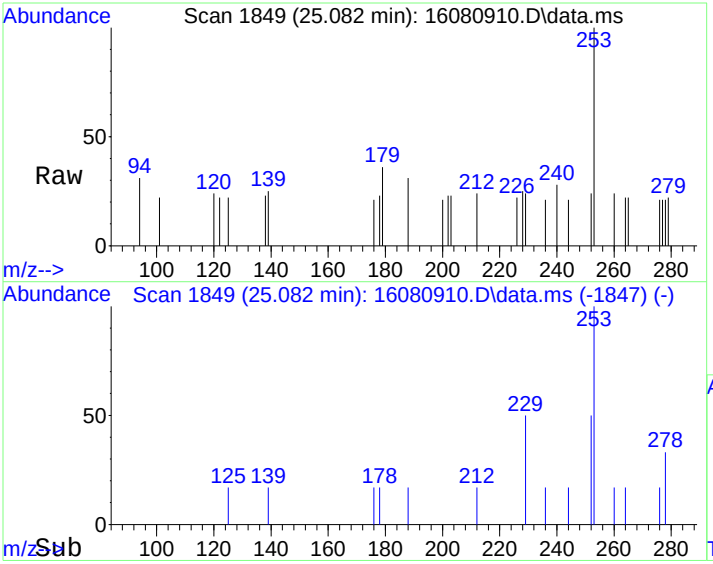


#18
Benzo[a]anthracene
Concen: 10.84 ug/kg
RT: 21.448 min Scan# 1472
Delta R.T. 0.163 min
Lab File: 16080910.D
Acq: 9 Aug 2016 2:25 pm

Tgt Ion:228 Resp: 1305

Ion	Ratio	Lower	Upper
228	100		
229	29.5	0.0	39.9
226	7.1	6.7	46.7

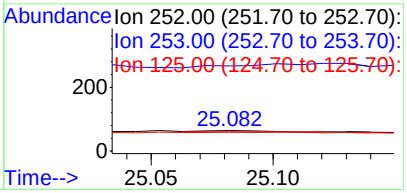




#23
Benzo(j)fluoranthene
Concen: 0.06 ug/kg
RT: 25.082 min Scan# 1849
Delta R.T. -0.011 min
Lab File: 16080910.D
Acq: 9 Aug 2016 2:25 pm

Tgt Ion:252 Resp: 6

Ion	Ratio	Lower	Upper
252	100		
253	0.0	1.9	41.9#
125	66.7	0.0	39.4#



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160809\
Data File : 16080911.D
Acq On : 9 Aug 2016 3:06 pm
Operator :
Sample : 1607317-33A
Misc : SAMP
ALS Vial : 11 Sample Multiplier: 10

Quant Time: Aug 10 08:01:10 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	11.001	136	308533	4000.00	ug/kg	117
6) Acenaphthene-d10	13.455	164	215283	4000.00	ug/kg	133
11) Phenanthrene-d10	15.559	188	491185	4000.00	ug/kg	95
17) Chrysene-d12	21.439	240	451935	4000.00	ug/kg	98
20) Perylene-d12	26.655	264	447437	4000.00	ug/kg	106

System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.384	172	5496	80.07	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 2.00%#			
15) 4-Terphenyl-d14	18.113	244	7007	81.14	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery = 2.03%#			

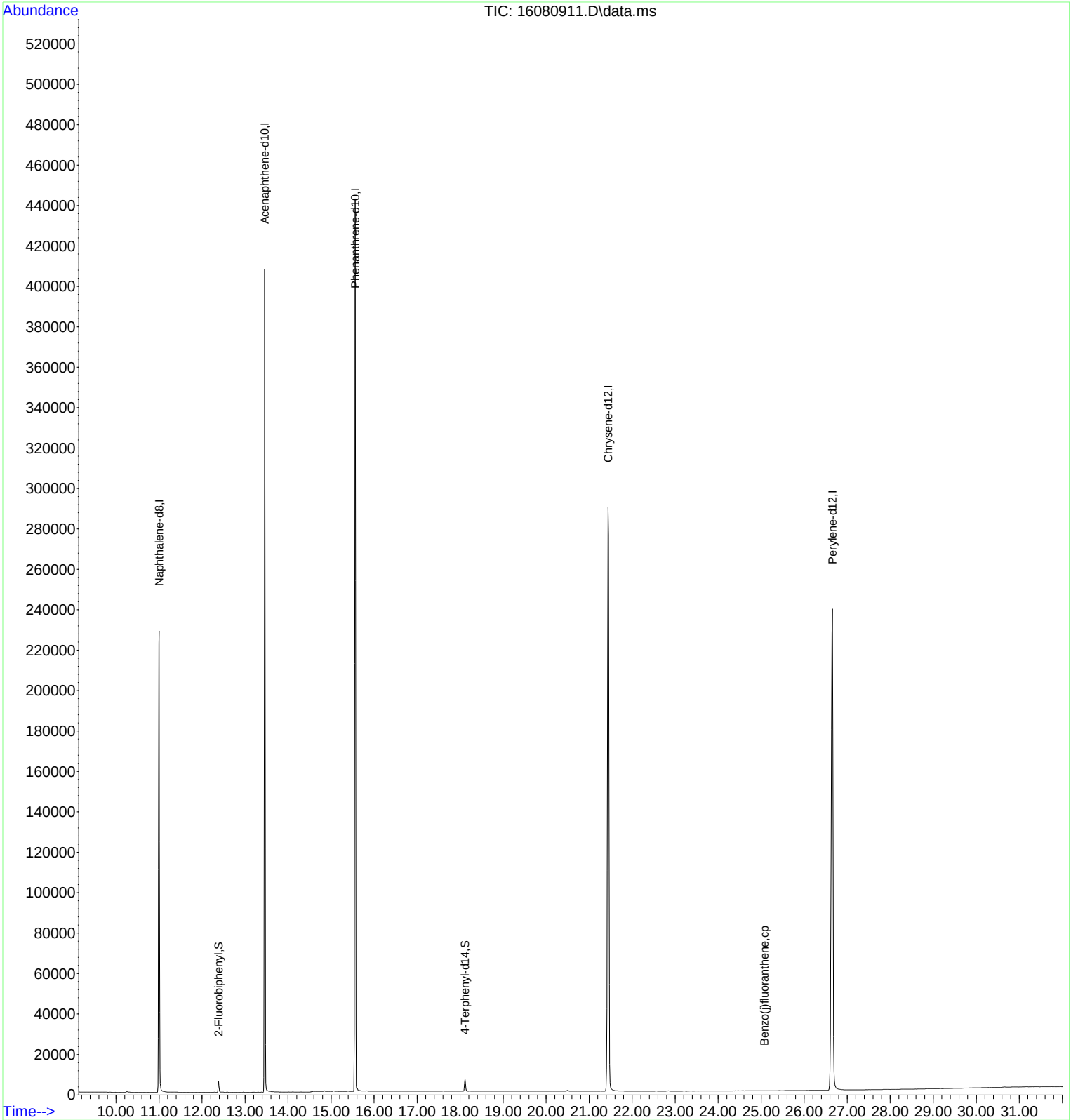
Target Compounds						Qvalue
23) Benzo(j)fluoranthene	25.064	252	44	0.48	ug/kg#	56

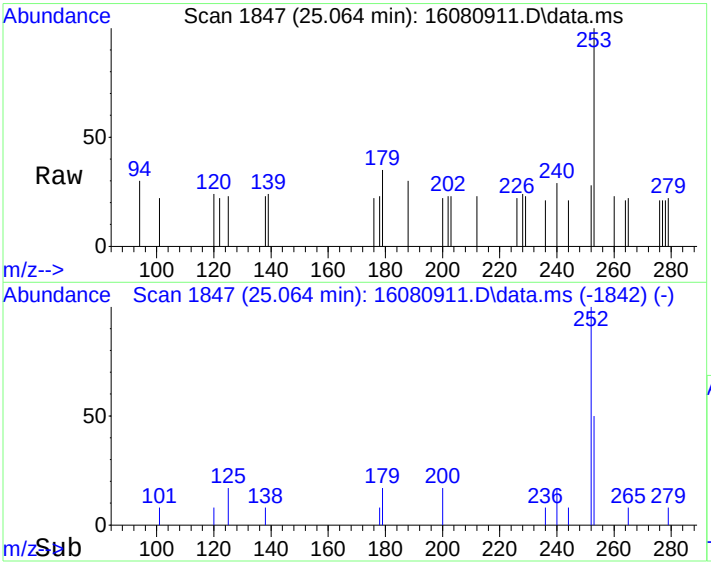
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160809\
Data File : 16080911.D
Acq On : 9 Aug 2016 3:06 pm
Operator :
Sample : 1607317-33A
Misc : SAMP
ALS Vial : 11 Sample Multiplier: 10

Quant Time: Aug 10 08:01:10 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration

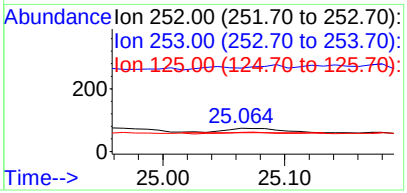




#23
Benzo(j)fluoranthene
Concen: 0.48 ug/kg
RT: 25.064 min Scan# 1847
Delta R.T. -0.029 min
Lab File: 16080911.D
Acq: 9 Aug 2016 3:06 pm

Tgt Ion:252 Resp: 44

Ion	Ratio	Lower	Upper
252	100		
253	47.7	1.9	41.9#
125	34.1	0.0	39.4



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160809\
Data File : 16080912.D
Acq On : 9 Aug 2016 3:46 pm
Operator :
Sample : 1607317-34A
Misc : SAMP
ALS Vial : 12 Sample Multiplier: 10

Quant Time: Aug 10 08:01:14 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	11.000	136	330941	4000.00	ug/kg	125
6) Acenaphthene-d10	13.454	164	233861	4000.00	ug/kg	144
11) Phenanthrene-d10	15.559	188	518700	4000.00	ug/kg	101
17) Chrysene-d12	21.449	240	488962	4000.00	ug/kg	106
20) Perylene-d12	26.655	264	475195	4000.00	ug/kg	113

System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.383	172	5510	74.84	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.87%#		
15) 4-Terphenyl-d14	18.114	244	6923	75.92	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery =	1.90%#		

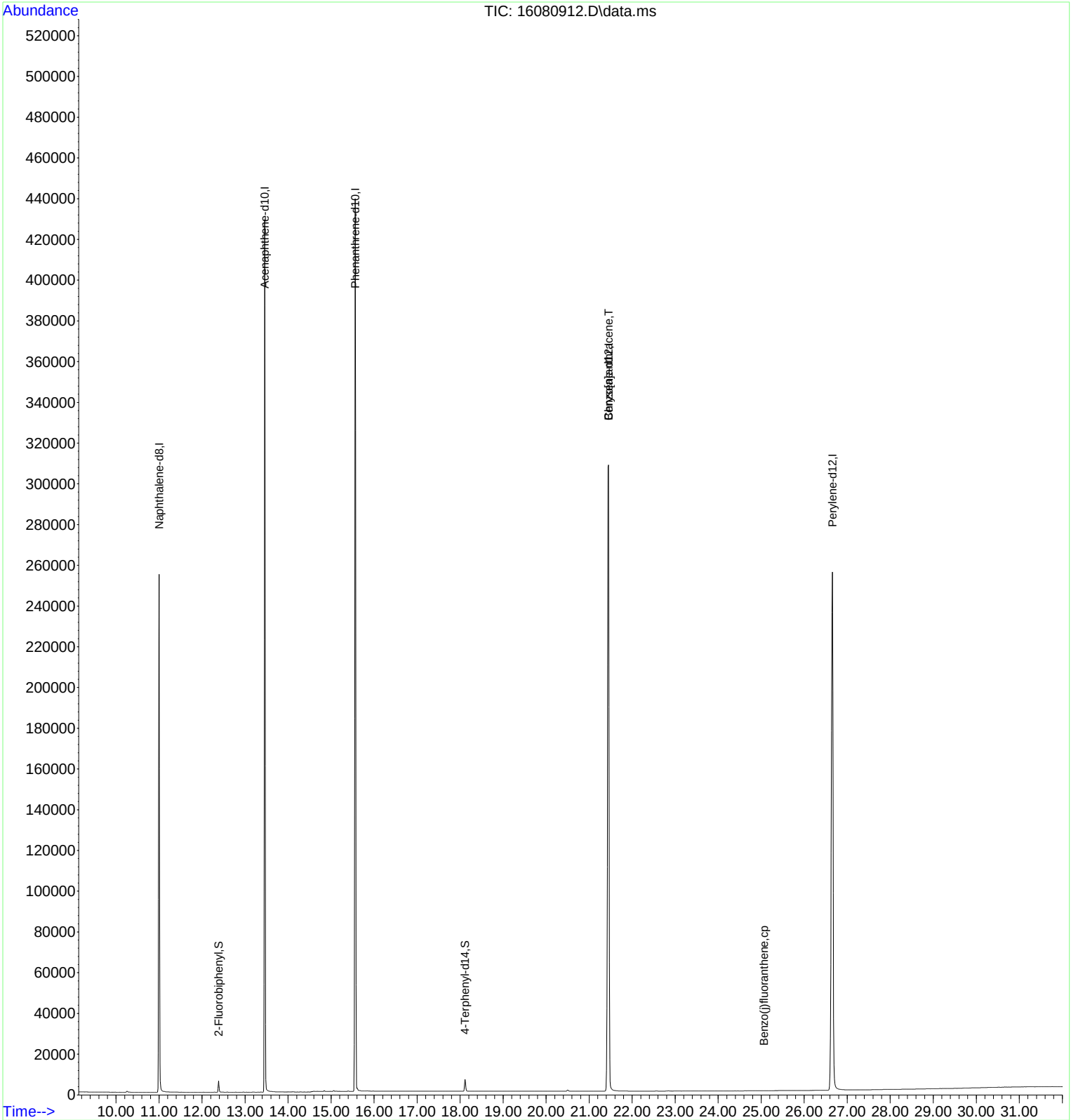
Target Compounds						Qvalue
18) Benzo[a]anthracene	21.449	228	1348	10.95	ug/kg	71
23) Benzo(j)fluoranthene	25.074	252	9	0.09	ug/kg#	1

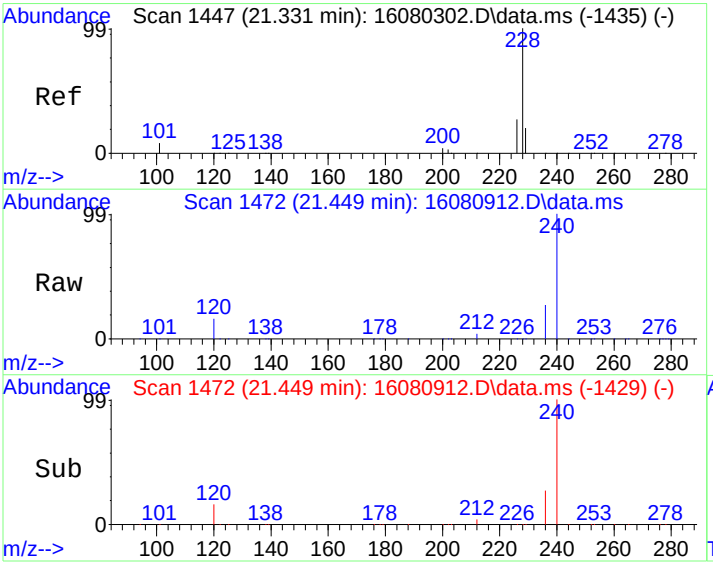
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160809\
Data File : 16080912.D
Acq On : 9 Aug 2016 3:46 pm
Operator :
Sample : 1607317-34A
Misc : SAMP
ALS Vial : 12 Sample Multiplier: 10

Quant Time: Aug 10 08:01:14 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration

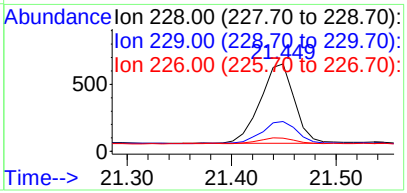


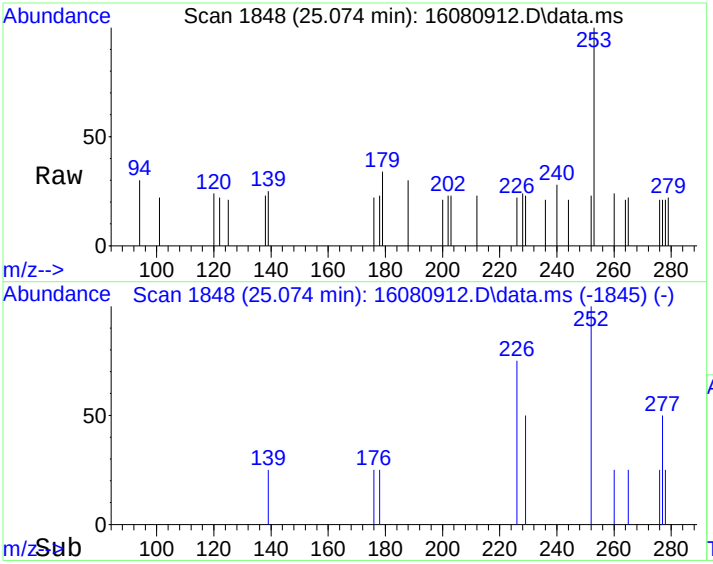


#18
Benzo[a]anthracene
Concen: 10.95 ug/kg
RT: 21.449 min Scan# 1472
Delta R.T. 0.165 min
Lab File: 16080912.D
Acq: 9 Aug 2016 3:46 pm

Tgt Ion:228 Resp: 1348

Ion	Ratio	Lower	Upper
228	100		
229	27.8	0.0	39.9
226	6.9	6.7	46.7

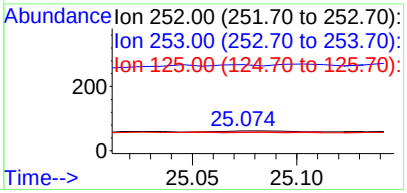




#23
Benzo(j)fluoranthene
Concen: 0.09 ug/kg
RT: 25.074 min Scan# 1848
Delta R.T. -0.019 min
Lab File: 16080912.D
Acq: 9 Aug 2016 3:46 pm

Tgt Ion:252 Resp: 9

Ion	Ratio	Lower	Upper
252	100		
253	144.4	1.9	41.9#
125	22.2	0.0	39.4



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160809\
Data File : 16080913.D
Acq On : 9 Aug 2016 4:27 pm
Operator :
Sample : 1607317-35A
Misc : SAMP
ALS Vial : 13 Sample Multiplier: 10

Quant Time: Aug 10 08:01:18 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	11.001	136	312473	4000.00	ug/kg	118
6) Acenaphthene-d10	13.455	164	220658	4000.00	ug/kg	136
11) Phenanthrene-d10	15.567	188	498093	4000.00	ug/kg	97
17) Chrysene-d12	21.447	240	462392	4000.00	ug/kg	100
20) Perylene-d12	26.653	264	451599	4000.00	ug/kg	107

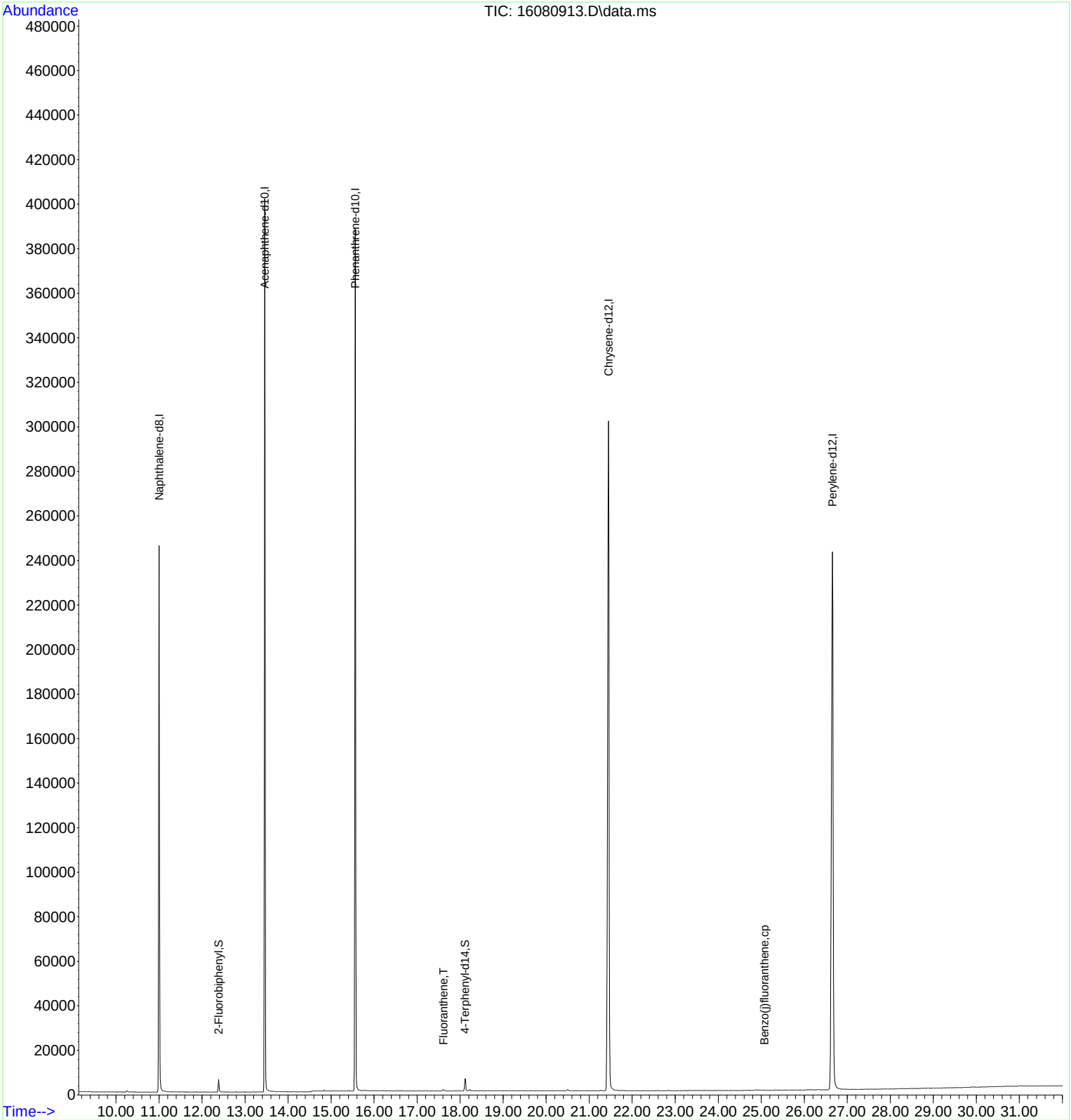
System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.384	172	5634	81.05	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 2.03%#			
15) 4-Terphenyl-d14	18.121	244	7010	80.05	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery = 2.00%#			

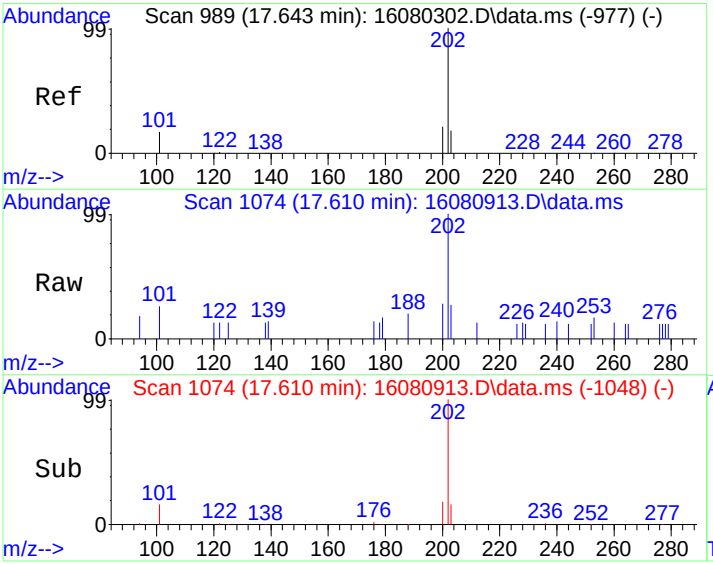
Target Compounds						Qvalue
14) Fluoranthene	17.610	202	705	5.21	ug/kg	98
23) Benzo(j)fluoranthene	25.072	252	167	1.80	ug/kg#	73

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\msdchem\1\DATA\160809\
Data File : 16080913.D
Acq On : 9 Aug 2016 4:27 pm
Operator :
Sample : 1607317-35A
Misc : SAMP
ALS Vial : 13 Sample Multiplier: 10

Quant Time: Aug 10 08:01:18 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration

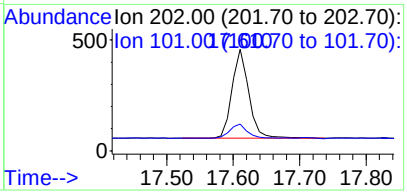


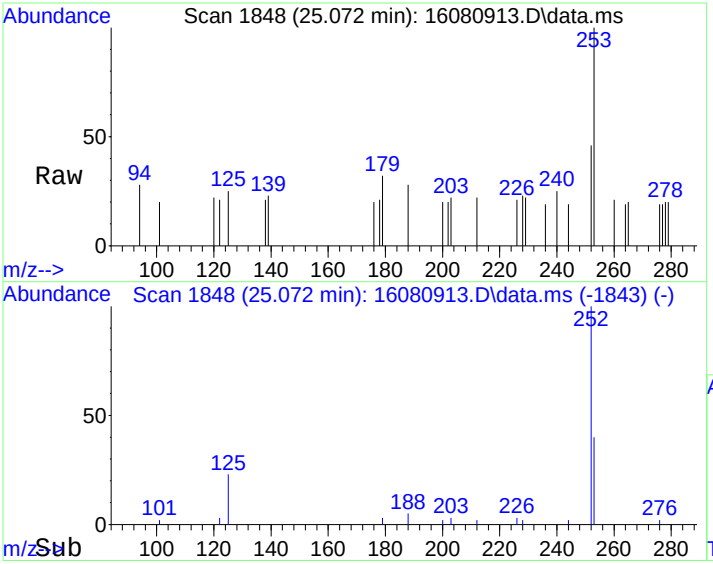


#14
Fluoranthene
Concen: 5.21 ug/kg
RT: 17.610 min Scan# 1074
Delta R.T. -0.001 min
Lab File: 16080913.D
Acq: 9 Aug 2016 4:27 pm

Tgt Ion:202 Resp: 705

Ion	Ratio	Lower	Upper
202	100		
101	16.5	0.0	37.2

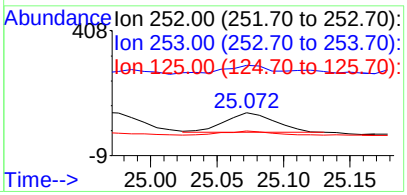




#23
Benzo(j)fluoranthene
Concen: 1.80 ug/kg
RT: 25.072 min Scan# 1848
Delta R.T. -0.021 min
Lab File: 16080913.D
Acq: 9 Aug 2016 4:27 pm

Tgt Ion:252 Resp: 167

Ion	Ratio	Lower	Upper
252	100		
253	45.5	1.9	41.9#
125	19.2	0.0	39.4



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160809\
Data File : 16080914.D
Acq On : 9 Aug 2016 5:08 pm
Operator :
Sample : 1607317-36A
Misc : SAMP
ALS Vial : 14 Sample Multiplier: 10

Quant Time: Aug 10 08:01:22 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	11.002	136	313482	4000.00	ug/kg	118
6) Acenaphthene-d10	13.456	164	229150	4000.00	ug/kg	141
11) Phenanthrene-d10	15.558	188	518912	4000.00	ug/kg	101
17) Chrysene-d12	21.448	240	467315	4000.00	ug/kg	101
20) Perylene-d12	26.654	264	454817	4000.00	ug/kg	108

System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.385	172	5469	78.42	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 1.96%#			
15) 4-Terphenyl-d14	18.122	244	6645	72.84	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery = 1.82%#			

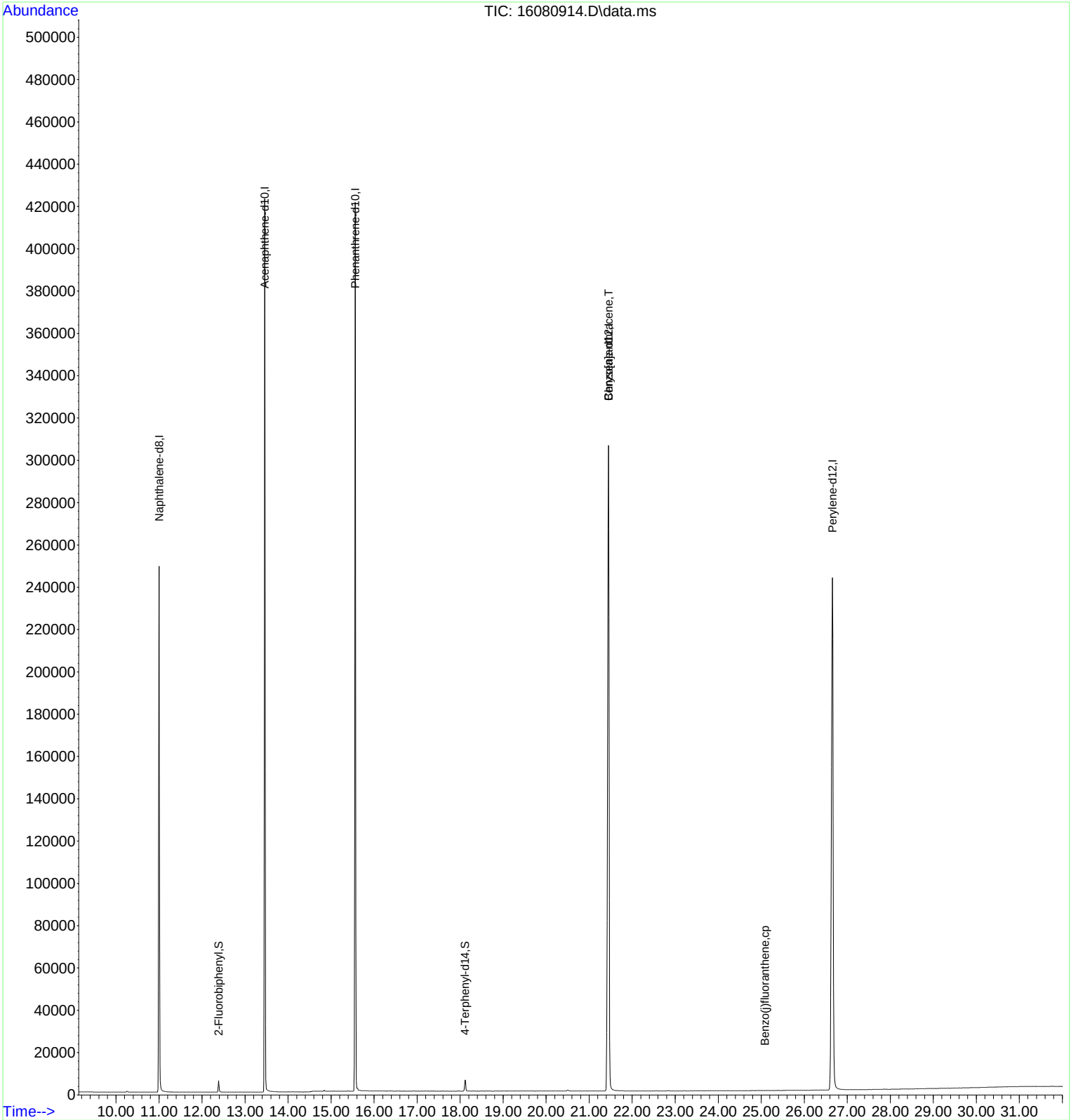
Target Compounds						Qvalue
18) Benzo[a]anthracene	21.448	228	1273	10.82	ug/kg	71
23) Benzo(j)fluoranthene	25.083	252	5	0.05	ug/kg#	54

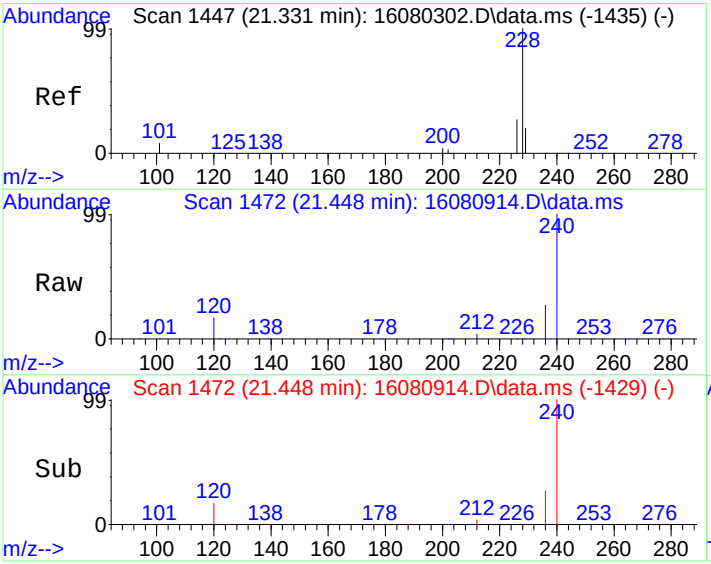
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160809\
Data File : 16080914.D
Acq On : 9 Aug 2016 5:08 pm
Operator :
Sample : 1607317-36A
Misc : SAMP
ALS Vial : 14 Sample Multiplier: 10

Quant Time: Aug 10 08:01:22 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration

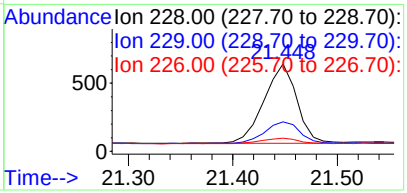


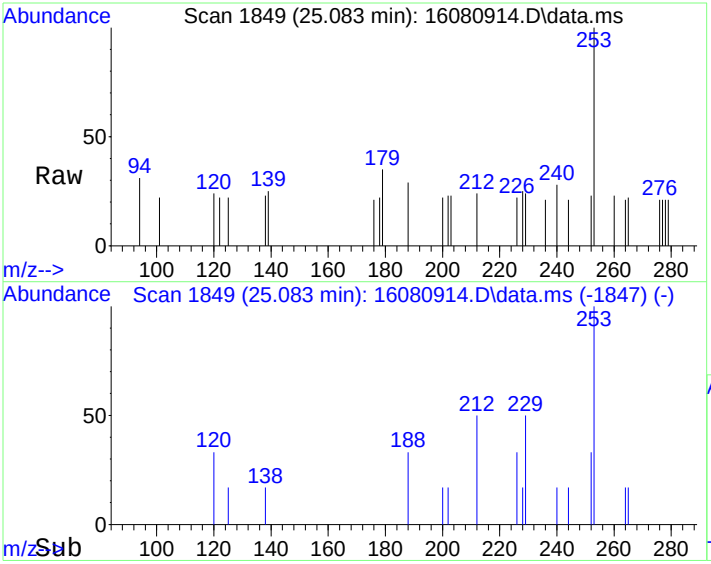


#18
Benzo[a]anthracene
Concen: 10.82 ug/kg
RT: 21.448 min Scan# 1472
Delta R.T. 0.163 min
Lab File: 16080914.D
Acq: 9 Aug 2016 5:08 pm

Tgt Ion:228 Resp: 1273

Ion	Ratio	Lower	Upper
228	100		
229	27.4	0.0	39.9
226	7.0	6.7	46.7

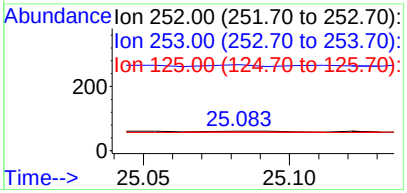




#23
Benzo(j)fluoranthene
Concen: 0.05 ug/kg
RT: 25.083 min Scan# 1849
Delta R.T. -0.010 min
Lab File: 16080914.D
Acq: 9 Aug 2016 5:08 pm

Tgt Ion:252 Resp: 5

Ion	Ratio	Lower	Upper
252	100		
253	0.0	1.9	41.9#
125	40.0	0.0	39.4#



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160809\
Data File : 16080915.D
Acq On : 9 Aug 2016 5:48 pm
Operator :
Sample : 1607317-37A
Misc : SAMP
ALS Vial : 15 Sample Multiplier: 10

Quant Time: Aug 10 08:01:26 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	11.002	136	307709	4000.00	ug/kg	116
6) Acenaphthene-d10	13.456	164	224070	4000.00	ug/kg	138
11) Phenanthrene-d10	15.558	188	490498	4000.00	ug/kg	95
17) Chrysene-d12	21.448	240	437252	4000.00	ug/kg	94
20) Perylene-d12	26.654	264	431245	4000.00	ug/kg	103

System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.385	172	5522	80.67	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 2.02%#			
15) 4-Terphenyl-d14	18.113	244	6405	74.28	ug/kg	-0.01
Spiked Amount 4000.000	Range 50 - 135		Recovery = 1.86%#			

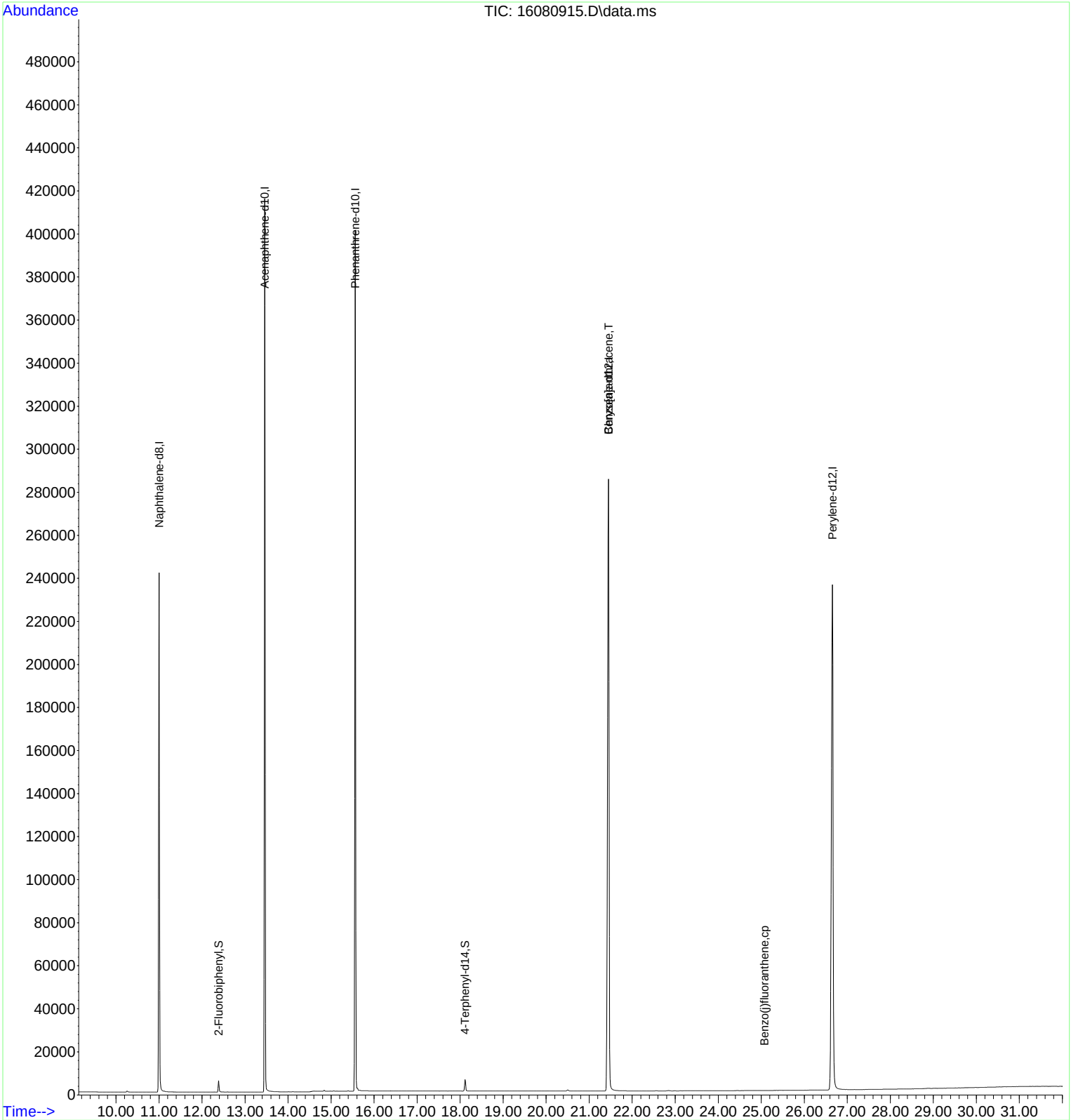
Target Compounds						Qvalue
18) Benzo[a]anthracene	21.448	228	1172	10.64	ug/kg	71
23) Benzo(j)fluoranthene	25.073	252	13	0.15	ug/kg#	1

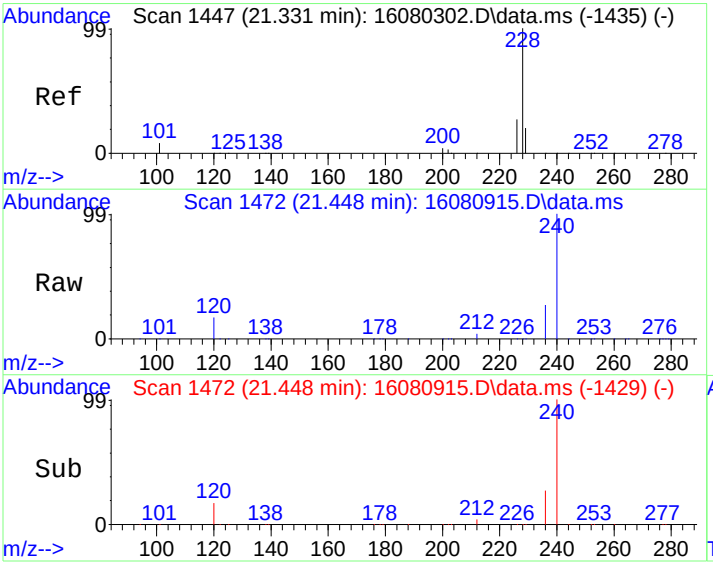
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160809\
Data File : 16080915.D
Acq On : 9 Aug 2016 5:48 pm
Operator :
Sample : 1607317-37A
Misc : SAMP
ALS Vial : 15 Sample Multiplier: 10

Quant Time: Aug 10 08:01:26 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration

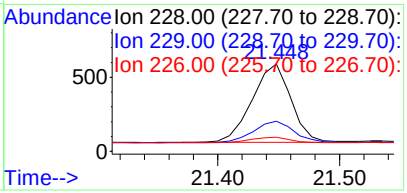


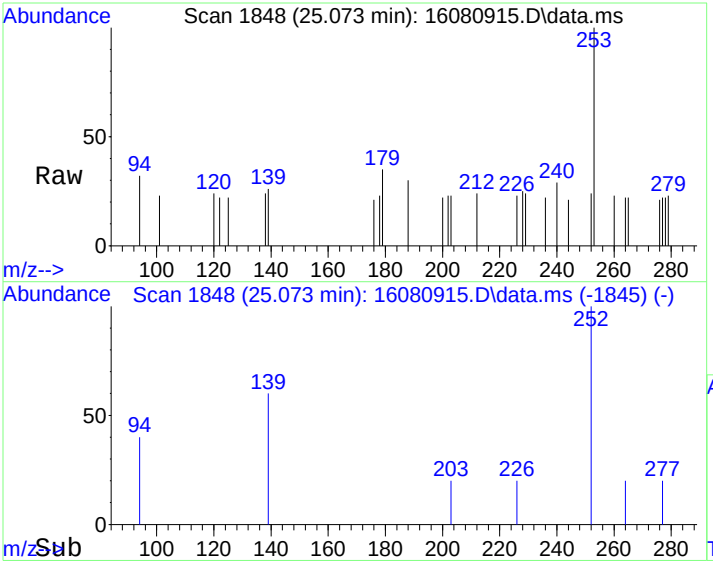


#18
Benzo[a]anthracene
Concen: 10.64 ug/kg
RT: 21.448 min Scan# 1472
Delta R.T. 0.163 min
Lab File: 16080915.D
Acq: 9 Aug 2016 5:48 pm

Tgt Ion:228 Resp: 1172

Ion	Ratio	Lower	Upper
228	100		
229	27.3	0.0	39.9
226	7.0	6.7	46.7

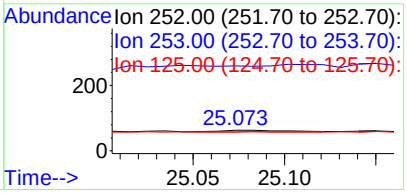




#23
Benzo(j)fluoranthene
Concen: 0.15 ug/kg
RT: 25.073 min Scan# 1848
Delta R.T. -0.020 min
Lab File: 16080915.D
Acq: 9 Aug 2016 5:48 pm

Tgt Ion:252 Resp: 13

Ion	Ratio	Lower	Upper
252	100		
253	169.2	1.9	41.9#
125	7.7	0.0	39.4



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160809\
Data File : 16080916.D
Acq On : 9 Aug 2016 6:27 pm
Operator :
Sample : 1607317-38A
Misc : SAMP
ALS Vial : 16 Sample Multiplier: 10

Quant Time: Aug 10 08:01:30 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	11.001	136	326814	4000.00	ug/kg	123
6) Acenaphthene-d10	13.455	164	224863	4000.00	ug/kg	139
11) Phenanthrene-d10	15.559	188	487011	4000.00	ug/kg	95
17) Chrysene-d12	21.449	240	464106	4000.00	ug/kg	100
20) Perylene-d12	26.655	264	454261	4000.00	ug/kg	108

System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.384	172	5736	78.90	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 1.97%#			
15) 4-Terphenyl-d14	18.114	244	6832	79.79	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery = 1.99%#			

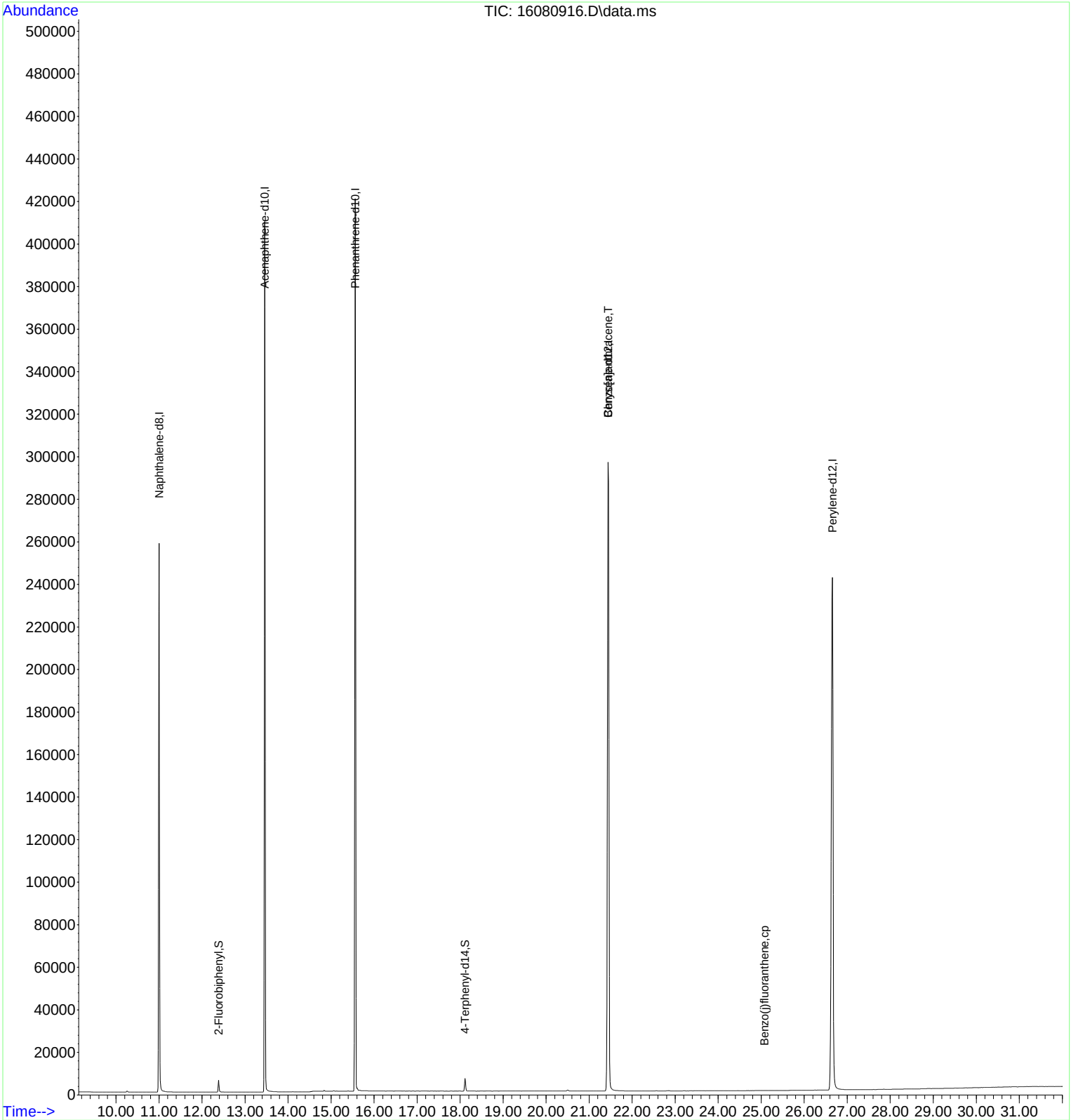
Target Compounds						Qvalue
18) Benzo[a]anthracene	21.440	228	1264	10.81	ug/kg#	73
23) Benzo(j)fluoranthene	25.074	252	3	0.03	ug/kg#	27

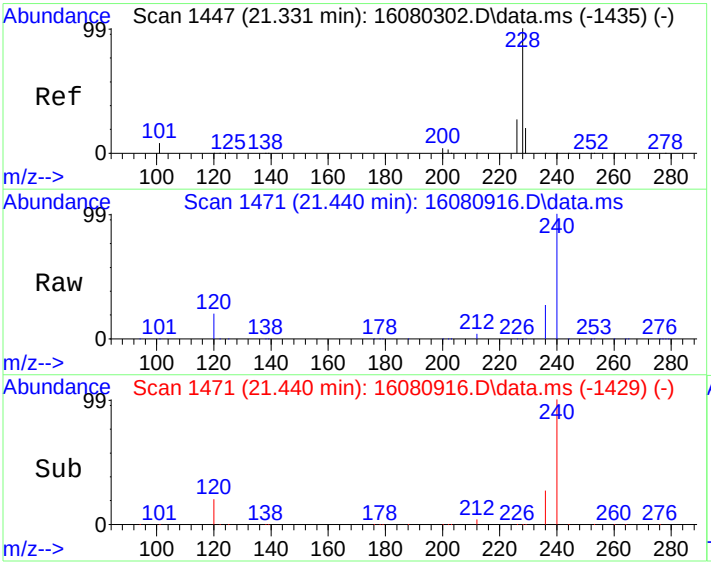
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160809\
Data File : 16080916.D
Acq On : 9 Aug 2016 6:27 pm
Operator :
Sample : 1607317-38A
Misc : SAMP
ALS Vial : 16 Sample Multiplier: 10

Quant Time: Aug 10 08:01:30 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration

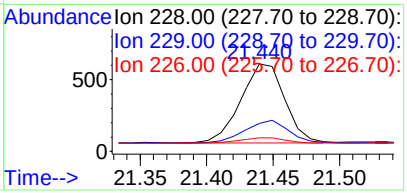


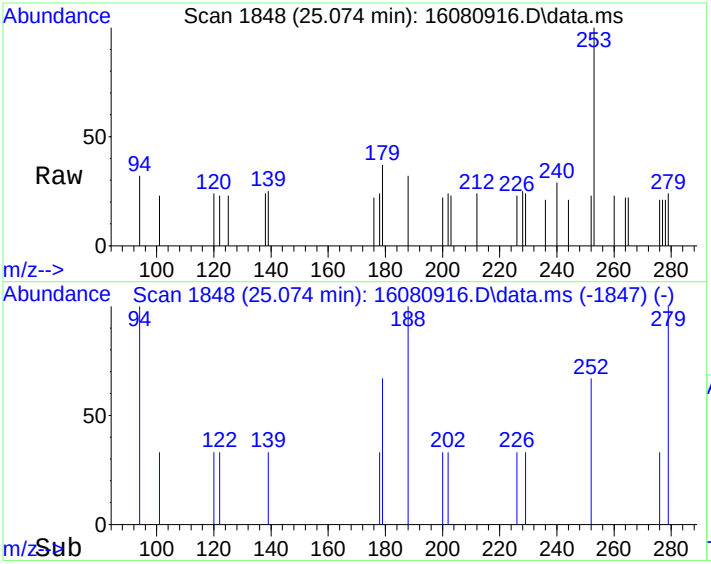


#18
Benzo[a]anthracene
Concen: 10.81 ug/kg
RT: 21.440 min Scan# 1471
Delta R.T. 0.155 min
Lab File: 16080916.D
Acq: 9 Aug 2016 6:27 pm

Tgt Ion:228 Resp: 1264

Ion	Ratio	Lower	Upper
228	100		
229	24.5	0.0	39.9
226	6.5	6.7	46.7#

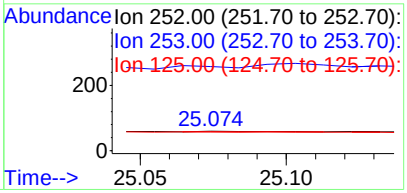




#23
Benzo(j)fluoranthene
Concen: 0.03 ug/kg
RT: 25.074 min Scan# 1848
Delta R.T. -0.019 min
Lab File: 16080916.D
Acq: 9 Aug 2016 6:27 pm

Tgt Ion:252 Resp: 3

Ion	Ratio	Lower	Upper
252	100		
253	0.0	1.9	41.9#
125	66.7	0.0	39.4#



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160809\
Data File : 16080918.D
Acq On : 9 Aug 2016 7:46 pm
Operator :
Sample : ICV2-160809
Misc : ICV
ALS Vial : 18 Sample Multiplier: 1

Quant Time: Aug 10 08:00:05 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration

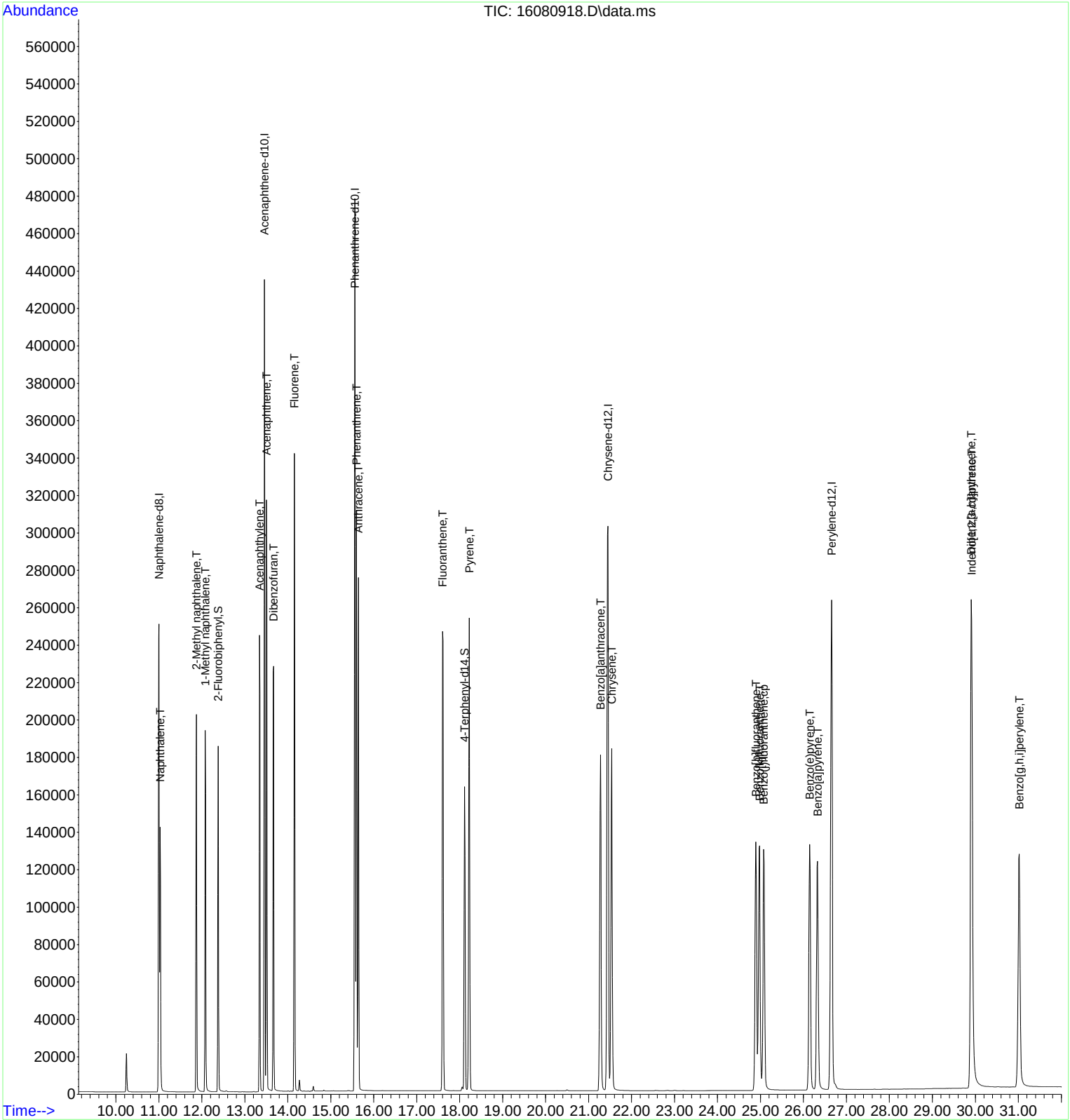
Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	11.001	136	327039	4000.00	ug/kg	124
6) Acenaphthene-d10	13.454	164	238763	4000.00	ug/kg	147
11) Phenanthrene-d10	15.559	188	538839	4000.00	ug/kg	105
17) Chrysene-d12	21.449	240	486914	4000.00	ug/kg	105
20) Perylene-d12	26.655	264	486864	4000.00	ug/kg	116
System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.376	172	146490	2013.49	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 50.34%			
15) 4-Terphenyl-d14	18.113	244	180912	1909.73	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery = 47.74%#			
Target Compounds						Qvalue
2) Naphthalene	11.029	128	148494	1903.50	ug/kg	99
3) 2-Methyl naphthalene	11.873	142	113190	2128.59	ug/kg	98
4) 1-Methyl naphthalene	12.079	142	105831	2164.86	ug/kg	97
7) Acenaphthylene	13.341	152	228316	2066.90	ug/kg	99
8) Acenaphthene	13.504	153	142965	1980.39	ug/kg	98
9) Dibenzofuran	13.667	168	219215	1769.20	ug/kg	85
10) Fluorene	14.157	166	186929	1744.62	ug/kg	99
12) Phenanthrene	15.597	178	273800	1995.71	ug/kg	100
13) Anthracene	15.645	178	273388	1943.73	ug/kg	99
14) Fluoranthene	17.612	202	274347	1875.79	ug/kg	90
16) Pyrene	18.220	202	273507	1870.41	ug/kg	99
18) Benzo[a]anthracene	21.276	228	247644	2019.41	ug/kg	100
19) Chrysene	21.536	228	233182	2009.00	ug/kg	100
21) Benzo[b]fluoranthene	24.891	252	249332	2019.85	ug/kg	99
22) Benzo[k]fluoranthene	24.978	252	227430	2211.73	ug/kg	98
23) Benzo(j)fluoranthene	25.074	252	214362	2148.51	ug/kg	100
24) Benzo(e)pyrene	26.144	252	243263	1980.35	ug/kg	100
25) Benzo[a]pyrene	26.327	252	238440	2064.13	ug/kg	99
26) Indeno[1,2,3-cd]pyrene	29.923	276	299357	2089.05	ug/kg	93
27) Dibenz[a,h]anthracene	29.904	278	246459	2144.89	ug/kg	98
28) Benzo[g,h,i]perylene	31.022	276	255087	2005.25	ug/kg	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160809\
Data File : 16080918.D
Acq On : 9 Aug 2016 7:46 pm
Operator :
Sample : ICV2-160809
Misc : ICV
ALS Vial : 18 Sample Multiplier: 1

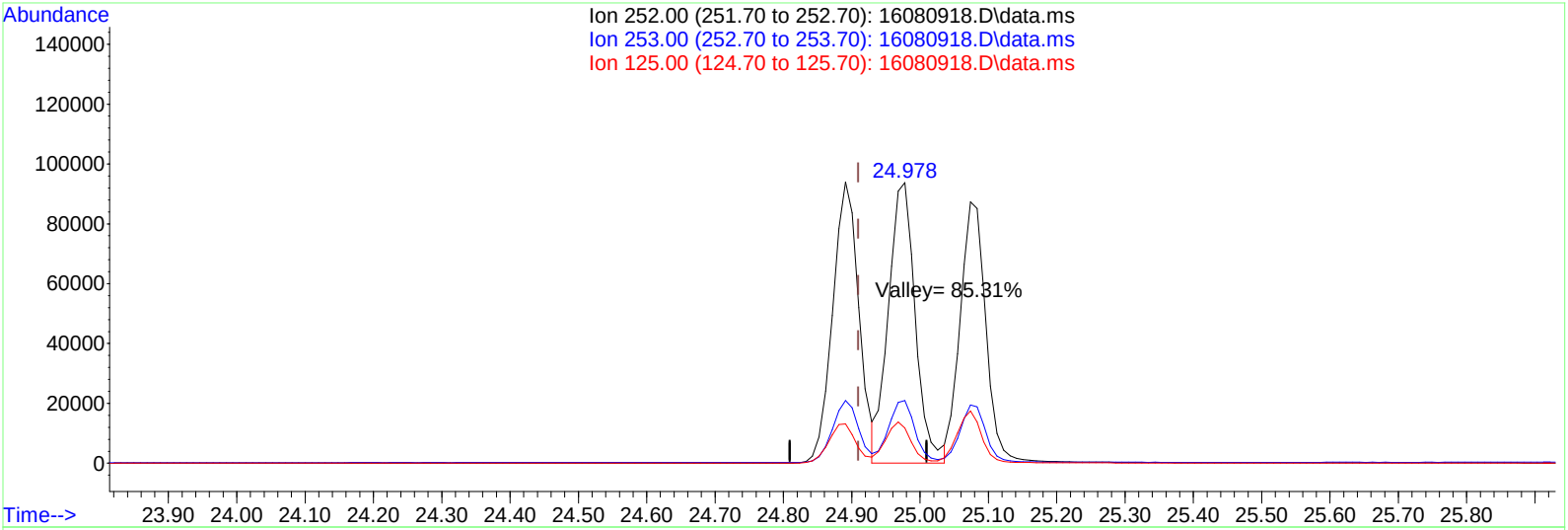
Quant Time: Aug 10 08:00:05 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration

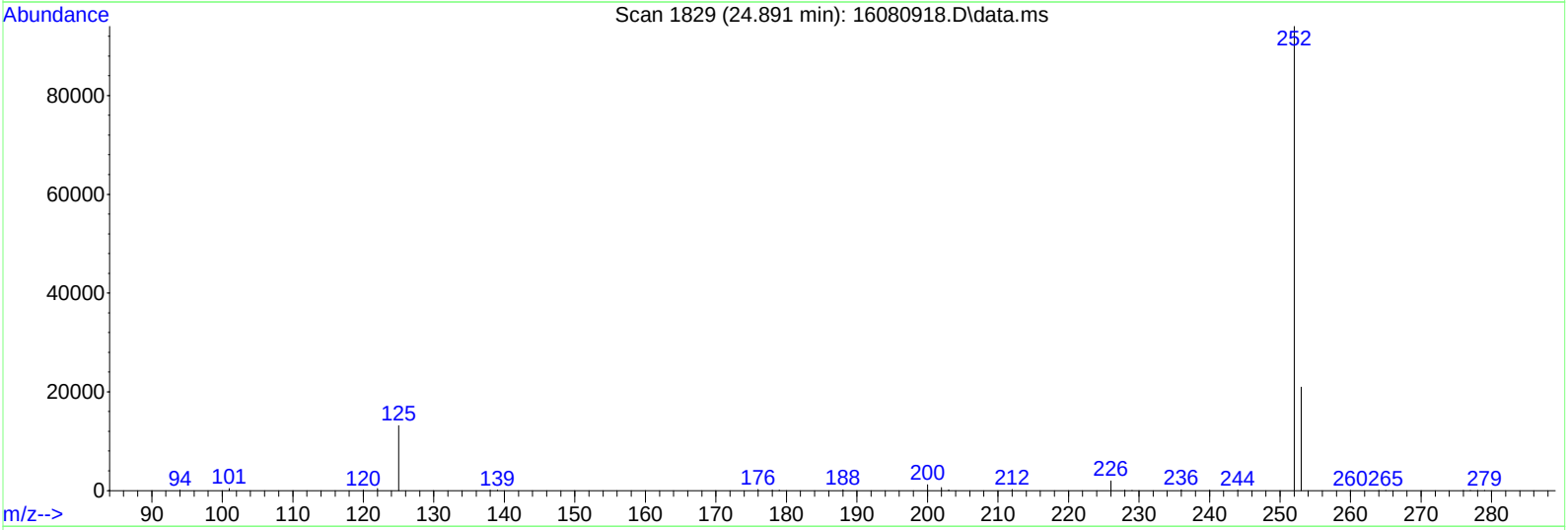


Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\160809\
Data File : 16080918.D
Acq On : 9 Aug 2016 7:46 pm
Operator :
Sample : ICV2-160809
Misc : ICV
ALS Vial : 18 Sample Multiplier: 1

Quant Time: Aug 09 20:18:06 2016
Quant Method : C:\MSDCHEM\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration





TIC: 16080918.D\data.ms

(21) Benzo[b]fluoranthene (T)

24.891min (-0.019) 2019.85ug/kg

response 249332

Ion	Exp%	Act%
252.00	100	100
253.00	21.90	22.06
125.00	13.20	13.91
0.00	0.00	0.00

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160809\
Data File : 16080920.D
Acq On : 9 Aug 2016 9:05 pm
Operator :
Sample : SB-160809
Misc : SBLK
ALS Vial : 20 Sample Multiplier: 1

Quant Time: Aug 10 08:00:08 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	10.993	136	290228	4000.00	ug/kg	110
6) Acenaphthene-d10	13.454	164	218781	4000.00	ug/kg	135
11) Phenanthrene-d10	15.557	188	452409	4000.00	ug/kg	88
17) Chrysene-d12	21.437	240	403953	4000.00	ug/kg	87
20) Perylene-d12	26.643	264	401895	4000.00	ug/kg	96

System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.398	172	4	0.06	ug/kg	0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery = 0.00%#			
15) 4-Terphenyl-d14	18.121	244	20	0.25	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery = 0.01%#			

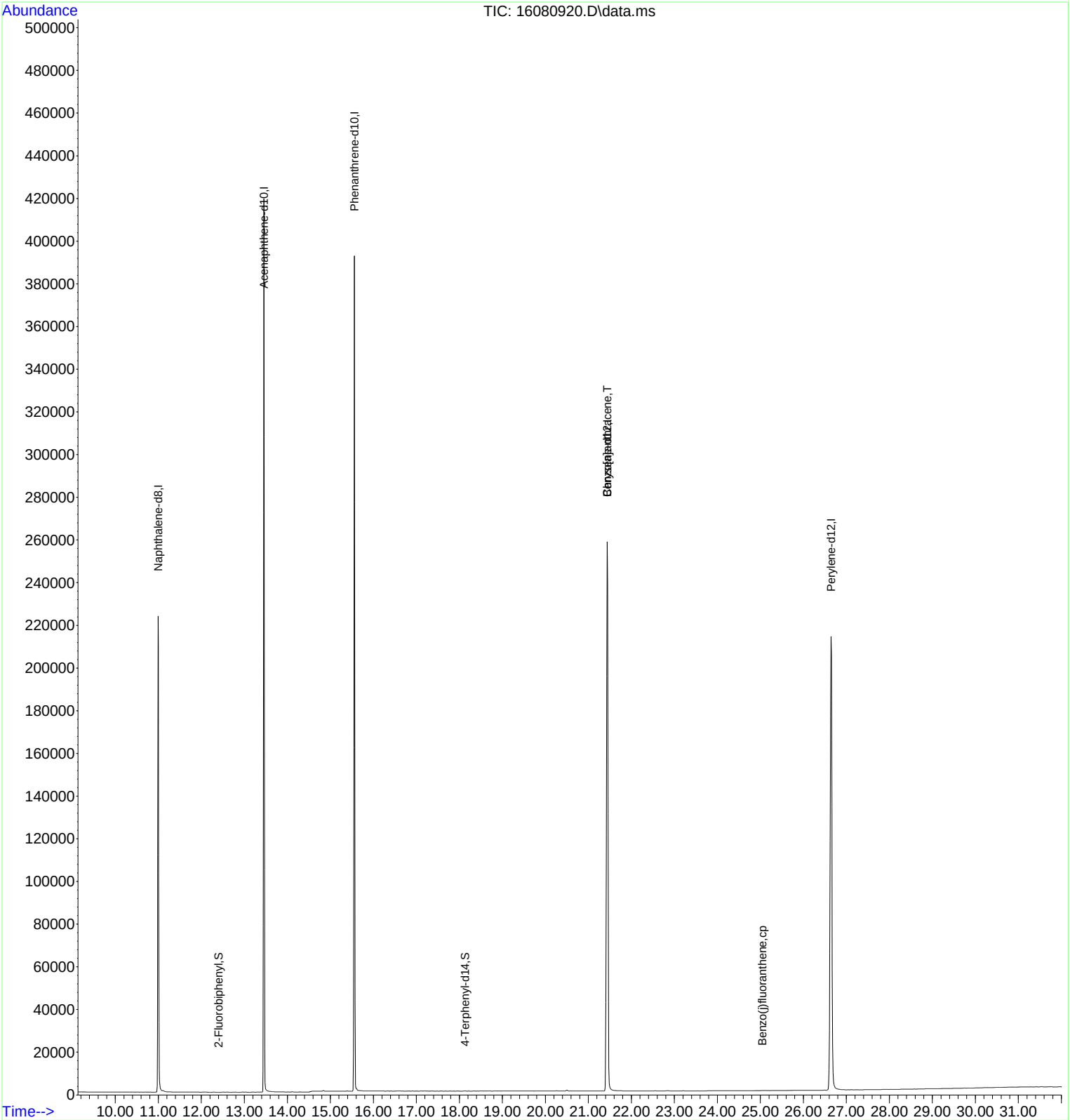
Target Compounds						Qvalue
18) Benzo[a]anthracene	21.437	228	1093	10.74	ug/kg	72
23) Benzo(j)fluoranthene	25.053	252	9	0.11	ug/kg#	1

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160809\
Data File : 16080920.D
Acq On : 9 Aug 2016 9:05 pm
Operator :
Sample : SB-160809
Misc : SBLK
ALS Vial : 20 Sample Multiplier: 1

Quant Time: Aug 10 08:00:08 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160809\
Data File : 16080929.D
Acq On : 10 Aug 2016 3:02 am
Operator :
Sample : 1607317-27AMS
Misc : MS
ALS Vial : 29 Sample Multiplier: 10

Quant Time: Aug 10 08:00:11 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration

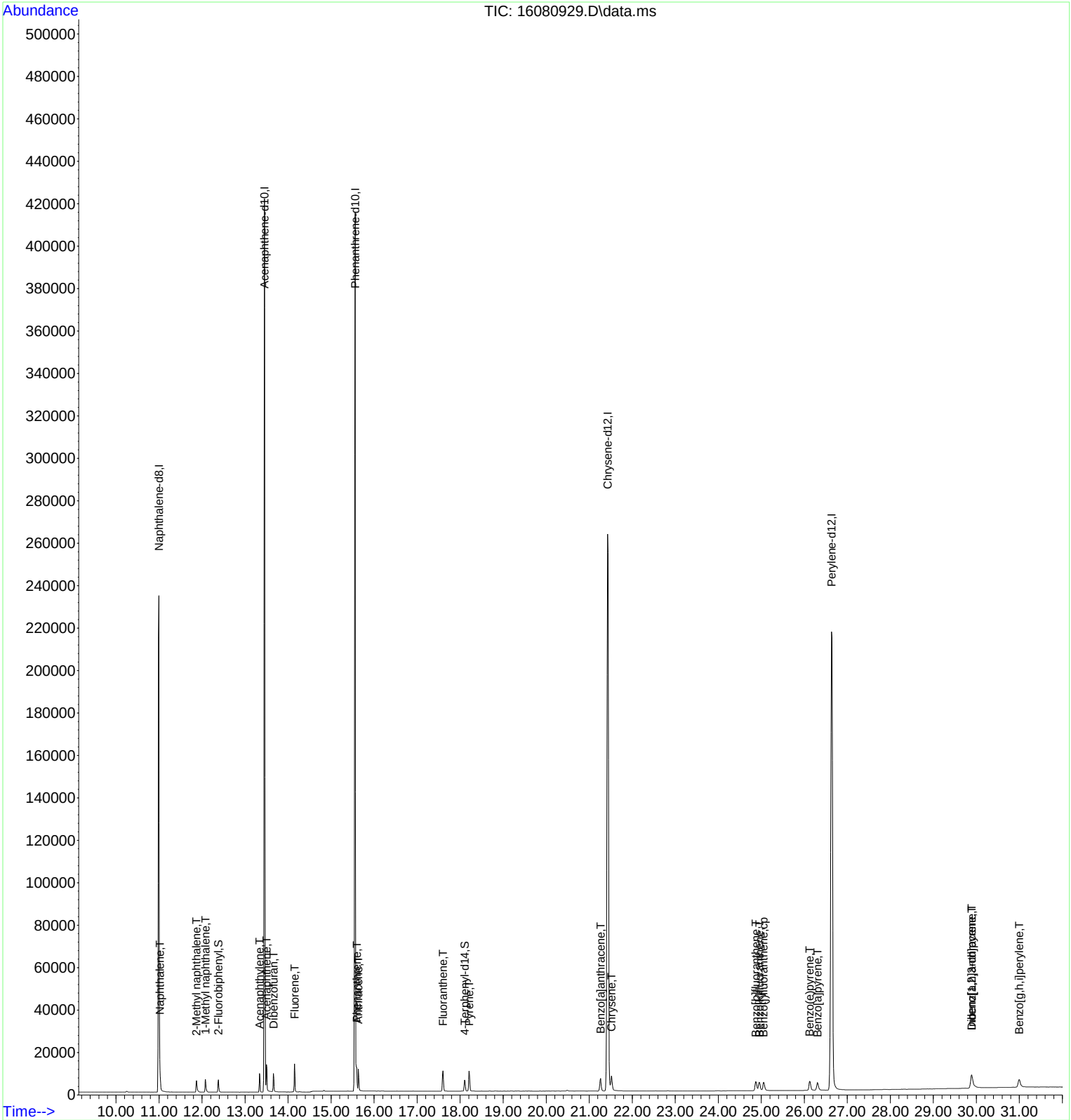
Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	10.995	136	304379	4000.00	ug/kg	115
6) Acenaphthene-d10	13.449	164	226569	4000.00	ug/kg	140
11) Phenanthrene-d10	15.557	188	471318	4000.00	ug/kg	92
17) Chrysene-d12	21.429	240	425303	4000.00	ug/kg	92
20) Perylene-d12	26.634	264	418898	4000.00	ug/kg	100
System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.378	172	6011	88.77	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 2.22%#			
15) 4-Terphenyl-d14	18.103	244	6449	77.83	ug/kg	-0.02
Spiked Amount 4000.000	Range 50 - 135		Recovery = 1.95%#			
Target Compounds						Qvalue
2) Naphthalene	11.023	128	5630	77.54	ug/kg	100
3) 2-Methyl naphthalene	11.874	142	4355	87.99	ug/kg	97
4) 1-Methyl naphthalene	12.080	142	4108	90.29	ug/kg	99
7) Acenaphthylene	13.335	152	8646	82.48	ug/kg	99
8) Acenaphthene	13.498	153	5530	80.73	ug/kg	97
9) Dibenzofuran	13.662	168	8404	71.48	ug/kg	98
10) Fluorene	14.151	166	6967	68.52	ug/kg	100
12) Phenanthrene	15.596	178	10803	85.67	ug/kg	99
13) Anthracene	15.635	178	9336	75.89	ug/kg	99
14) Fluoranthene	17.601	202	10606	82.90	ug/kg	92
16) Pyrene	18.209	202	10604	82.91	ug/kg	99
18) Benzo[a]anthracene	21.265	228	8720	81.41	ug/kg	99
19) Chrysene	21.525	228	8372	82.58	ug/kg	98
21) Benzo[b]fluoranthene	24.880	252	8672	81.65	ug/kg	99
22) Benzo[k]fluoranthene	24.957	252	6611	74.72	ug/kg	97
23) Benzo(j)fluoranthene	25.053	252	6869	80.02	ug/kg	99
24) Benzo(e)pyrene	26.133	252	8837	83.61	ug/kg	98
25) Benzo[a]pyrene	26.307	252	8018	80.67	ug/kg	98
26) Indeno[1,2,3-cd]pyrene	29.893	276	9958	80.77	ug/kg	99
27) Dibenz[a,h]anthracene	29.883	278	7341	74.25	ug/kg	97
28) Benzo[g,h,i]perylene	30.992	276	9098	83.12	ug/kg	96

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160809\
Data File : 16080929.D
Acq On : 10 Aug 2016 3:02 am
Operator :
Sample : 1607317-27AMS
Misc : MS
ALS Vial : 29 Sample Multiplier: 10

Quant Time: Aug 10 08:00:11 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160809\
Data File : 16080930.D
Acq On : 10 Aug 2016 3:42 am
Operator :
Sample : 1607317-27AMSD
Misc : MSD
ALS Vial : 30 Sample Multiplier: 10

Quant Time: Aug 10 08:00:14 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration

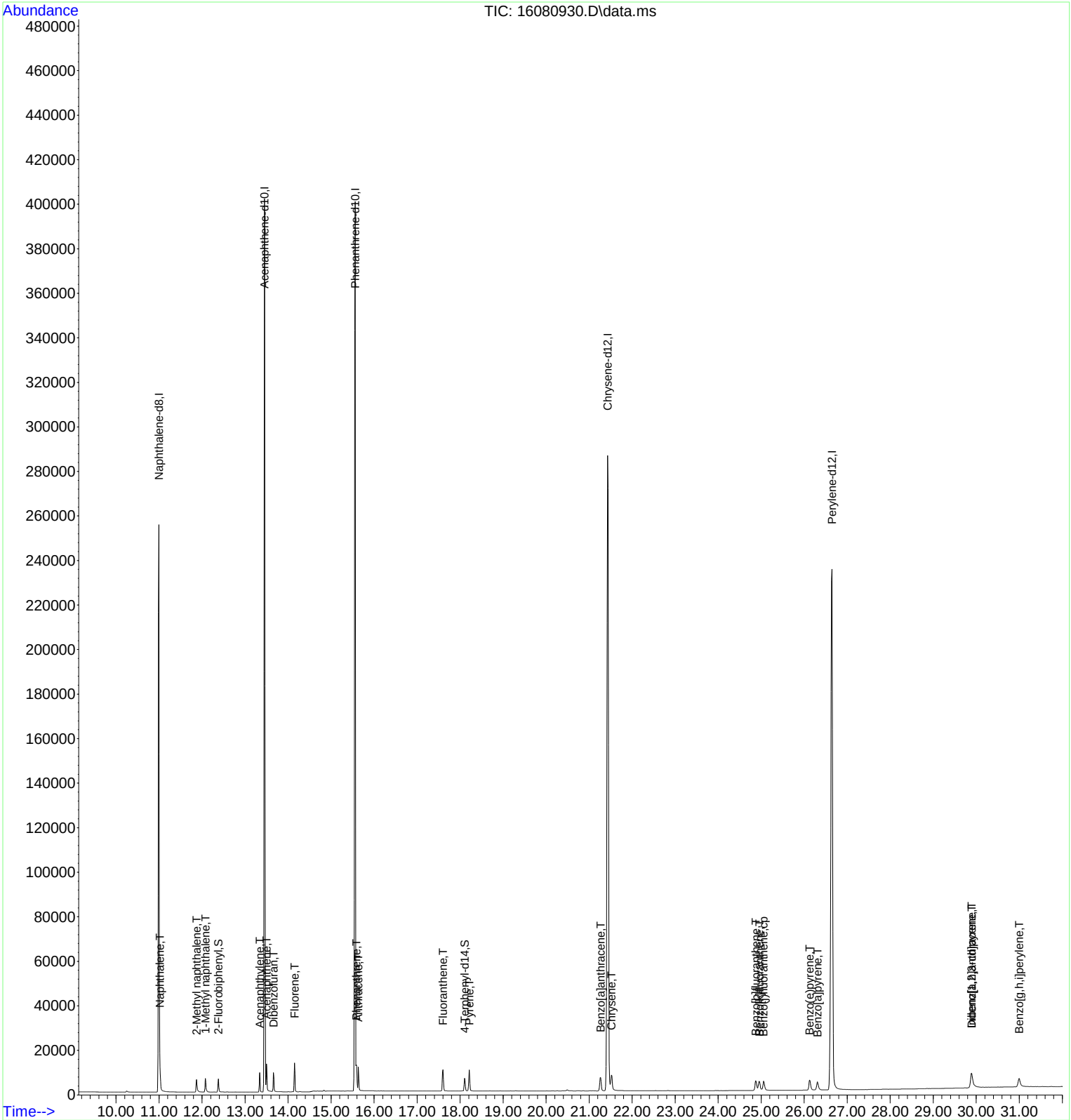
Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	10.994	136	322666	4000.00	ug/kg	122
6) Acenaphthene-d10	13.448	164	227336	4000.00	ug/kg	140
11) Phenanthrene-d10	15.558	188	486204	4000.00	ug/kg	94
17) Chrysene-d12	21.429	240	450460	4000.00	ug/kg	97
20) Perylene-d12	26.645	264	440457	4000.00	ug/kg	105
System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.377	172	5841	81.37	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 2.03%#			
15) 4-Terphenyl-d14	18.103	244	6720	78.62	ug/kg	-0.02
Spiked Amount 4000.000	Range 50 - 135		Recovery = 1.97%#			
Target Compounds						Qvalue
2) Naphthalene	11.022	128	5836	75.82	ug/kg	99
3) 2-Methyl naphthalene	11.873	142	4438	84.59	ug/kg	97
4) 1-Methyl naphthalene	12.079	142	4160	86.25	ug/kg	99
7) Acenaphthylene	13.342	152	8574	81.52	ug/kg	99
8) Acenaphthene	13.498	153	5466	79.52	ug/kg	97
9) Dibenzofuran	13.661	168	8273	70.12	ug/kg	99
10) Fluorene	14.150	166	6886	67.50	ug/kg	100
12) Phenanthrene	15.587	178	11088	85.22	ug/kg	99
13) Anthracene	15.635	178	9475	74.66	ug/kg	98
14) Fluoranthene	17.602	202	10983	83.22	ug/kg	91
16) Pyrene	18.209	202	10863	82.33	ug/kg	98
18) Benzo[a]anthracene	21.265	228	9051	79.78	ug/kg	99
19) Chrysene	21.516	228	8542	79.55	ug/kg	100
21) Benzo[b]fluoranthene	24.871	252	8948	80.13	ug/kg	99
22) Benzo[k]fluoranthene	24.958	252	6672	71.72	ug/kg	98
23) Benzo(j)fluoranthene	25.054	252	7326	81.16	ug/kg	99
24) Benzo(e)pyrene	26.124	252	9034	81.29	ug/kg	98
25) Benzo[a]pyrene	26.307	252	8117	77.67	ug/kg	99
26) Indeno[1,2,3-cd]pyrene	29.894	276	10303	79.47	ug/kg	98
27) Dibenz[a,h]anthracene	29.884	278	7727	74.33	ug/kg	99
28) Benzo[g,h,i]perylene	30.993	276	9357	81.31	ug/kg	97

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160809\
Data File : 16080930.D
Acq On : 10 Aug 2016 3:42 am
Operator :
Sample : 1607317-27AMSD
Misc : MSD
ALS Vial : 30 Sample Multiplier: 10

Quant Time: Aug 10 08:00:14 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160809\
Data File : 16080931.D
Acq On : 10 Aug 2016 4:21 am
Operator :
Sample : CCV1-160809
Misc : CCV
ALS Vial : 31 Sample Multiplier: 1

Quant Time: Aug 10 08:00:17 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	10.995	136	339144	4000.00	ug/kg	128
6) Acenaphthene-d10	13.449	164	250199	4000.00	ug/kg	154
11) Phenanthrene-d10	15.559	188	531226	4000.00	ug/kg	103
17) Chrysene-d12	21.439	240	473327	4000.00	ug/kg	102
20) Perylene-d12	26.645	264	468435	4000.00	ug/kg	111

System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.371	172	76297	1011.27	ug/kg	-0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery = 25.28%#			
15) 4-Terphenyl-d14	18.104	244	86485	926.03	ug/kg	-0.02
Spiked Amount 4000.000	Range 50 - 135		Recovery = 23.15%#			

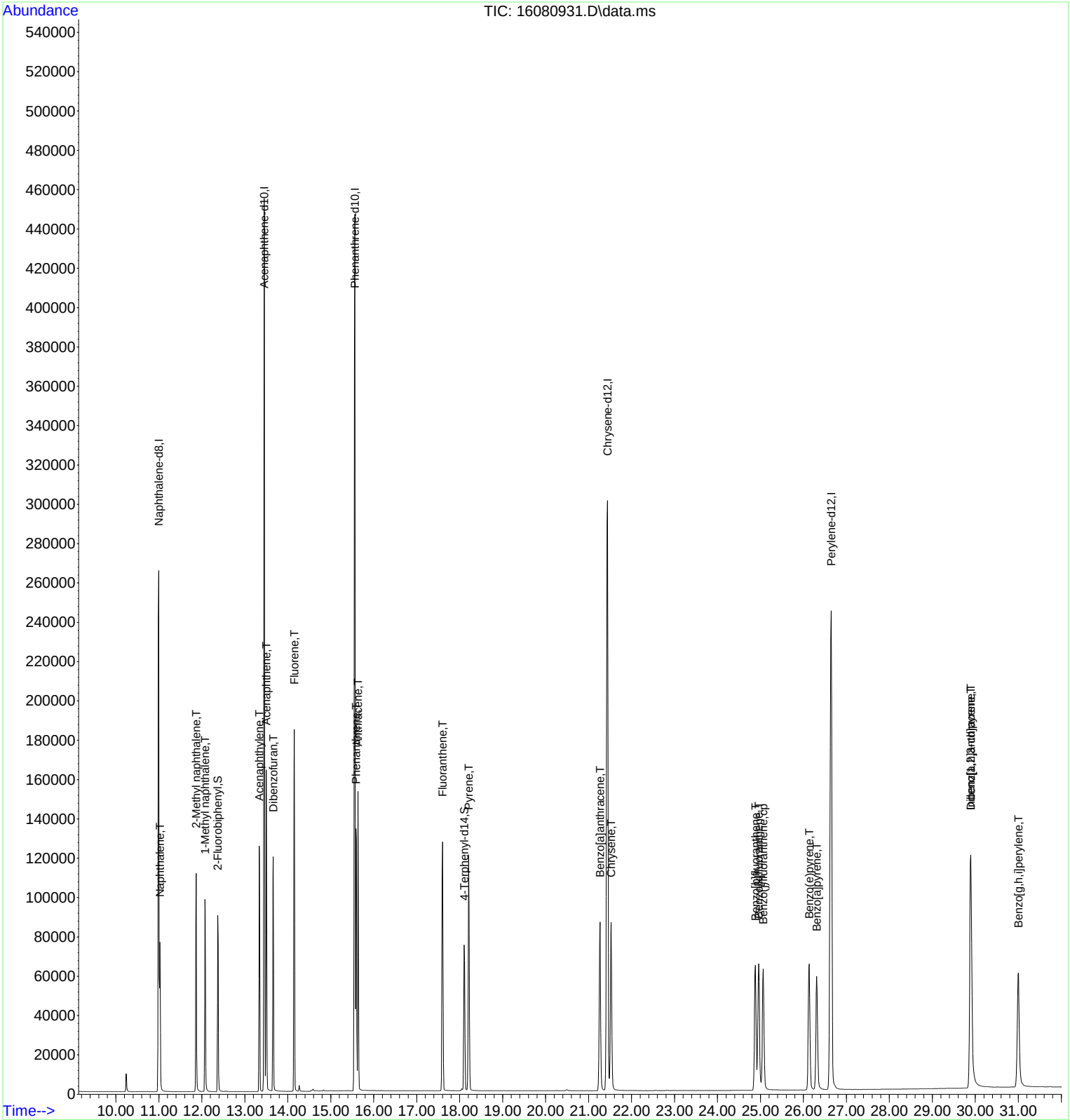
Target Compounds						Qvalue
2) Naphthalene	11.023	128	78796	974.01	ug/kg	100
3) 2-Methyl naphthalene	11.867	142	61430	1113.99	ug/kg	98
4) 1-Methyl naphthalene	12.073	142	57152	1127.36	ug/kg	96
7) Acenaphthylene	13.335	152	120345	1039.66	ug/kg	99
8) Acenaphthene	13.498	153	75782	1001.77	ug/kg	97
9) Dibenzofuran	13.662	168	112954	869.94	ug/kg	88
10) Fluorene	14.151	166	95884	853.99	ug/kg	100
12) Phenanthrene	15.588	178	139859	1020.44	ug/kg	99
13) Anthracene	15.636	178	133466	962.51	ug/kg	99
14) Fluoranthene	17.603	202	135290	938.27	ug/kg	92
16) Pyrene	18.210	202	135147	937.46	ug/kg	99
18) Benzo[a]anthracene	21.266	228	119071	998.83	ug/kg	99
19) Chrysene	21.526	228	113651	1007.28	ug/kg	99
21) Benzo[b]fluoranthene	24.881	252	119444	1005.69	ug/kg	99
22) Benzo[k]fluoranthene	24.958	252	105341	1064.73	ug/kg	99
23) Benzo(j)fluoranthene	25.064	252	103607	1079.29	ug/kg	99
24) Benzo(e)pyrene	26.134	252	117253	992.08	ug/kg	100
25) Benzo[a]pyrene	26.308	252	112887	1015.69	ug/kg	98
26) Indeno[1,2,3-cd]pyrene	29.904	276	144007	1044.48	ug/kg	93
27) Dibenz[a,h]anthracene	29.885	278	117199	1060.09	ug/kg	98
28) Benzo[g,h,i]perylene	31.003	276	123493	1008.98	ug/kg	99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160809\
Data File : 16080931.D
Acq On : 10 Aug 2016 4:21 am
Operator :
Sample : CCV1-160809
Misc : CCV
ALS Vial : 31 Sample Multiplier: 1

Quant Time: Aug 10 08:00:17 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration



GCMS8
Calibration Curve
For

DHL Work Order
1607317

CAL ID: 681

Method 8270 PAH Calibration Curve Sheet

Instrument ID: GCMS #6 **Calibration File Name:** PAH160802.CAL

Target Concentration	Solvent Amount mL	Standard Preparation Stocks and Surrogate (µL/mL)	Final Volume mL
5 ppb	0.999	0.001 mL of 5000 ppb	1
10 ppb	0.998	0.002 mL of 5000 ppb	1
50 ppb	0.990	0.01 mL of 5000 ppb	1
100 ppb	0.980	0.02 mL of 5000 ppb	1
500 ppb	0.900	0.10 mL of 5000 ppb	1
1000 ppb	0.800	0.20 mL of 5000 ppb	1
2000 ppb	0.600	0.40 mL of 5000 ppb	1
5000 ppb	----	PAHCAL160801	10
SSCV 2500 ppb	0.500	0.50 mL of PAHSSCV160725	1
SSCV 2500 ppb	----	PAHSSCV160801-1	1

Standards Used for the Calibration Curve

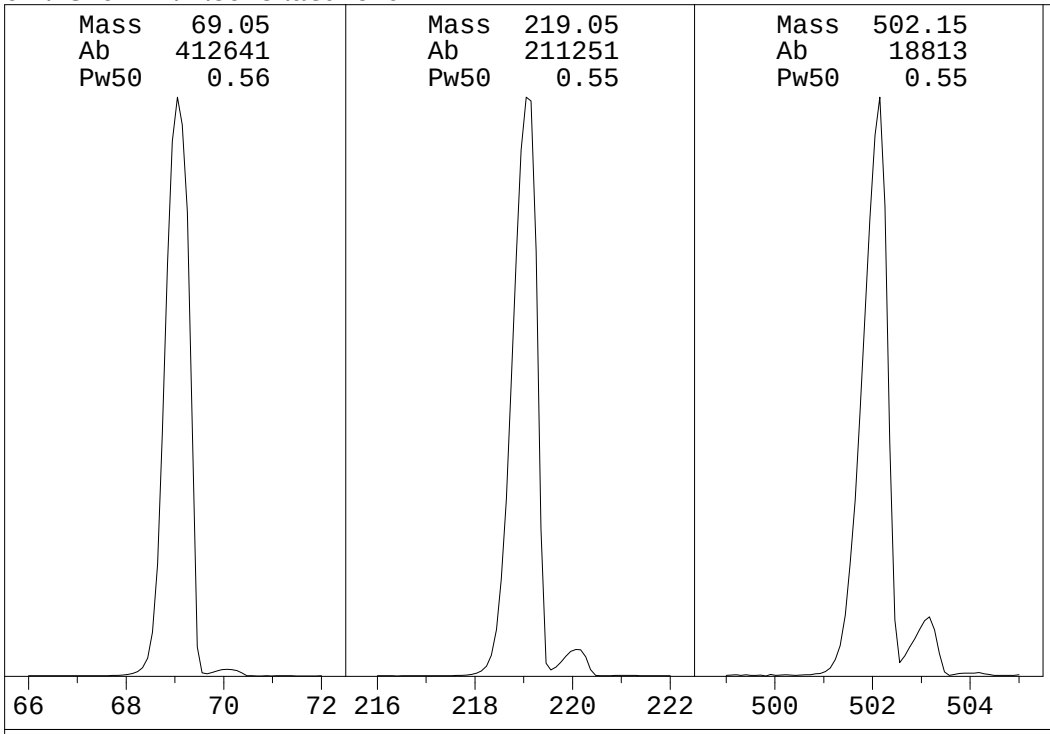
Primary Stock STDs	DHL Standard ID	Second Source (SS) Stock STDs	DHL Standard ID
5 PPM (5000 PPB) PAH CAL STD	**PAHCAL160801**	5PPM (5000PPB) PAH SSCV STD	**PAHSSCV160725**
		2.5PPM (2500PPB) PAH SSCV STD	**PAHSSCV160801-1**

Review Item	Acceptance Criteria	Yes	No	N/A	2nd Level Review
1. Are all standards within expiration dates?	Primary Stocks = 1 year Intermediate Standards = 6 months	X			X
2. Are all manual integrations listed on MI tracking form? **(DoD Projects only)**	Manual Integration Tracking Form			X	
3. Does the tune and resolution check meet criteria?	Benzo(b) / Benzo(k)phenanthrene Valley > 50% See Tune Eval Report	X			
4. Does the ICAL curve meet criteria? Use average CF only if %RSD < 15%	%RSD < 15% COD ≥ 0.990	X			
5. Has the low point been reprocessed under the new ICAL curve and meets criteria?	70-130% recovery	X			
6. Has the SSCV been analyzed and meets criteria?	80-120% recovery	X			

Analyst: Karyn Lane Date: 08/3/2016

Second-Level Review: Date: 08/10/2016

Tue Aug 02 16:40:26 2016 Instrument: GCMS #8
C:\MSDCHEM\1\5973\atune.u

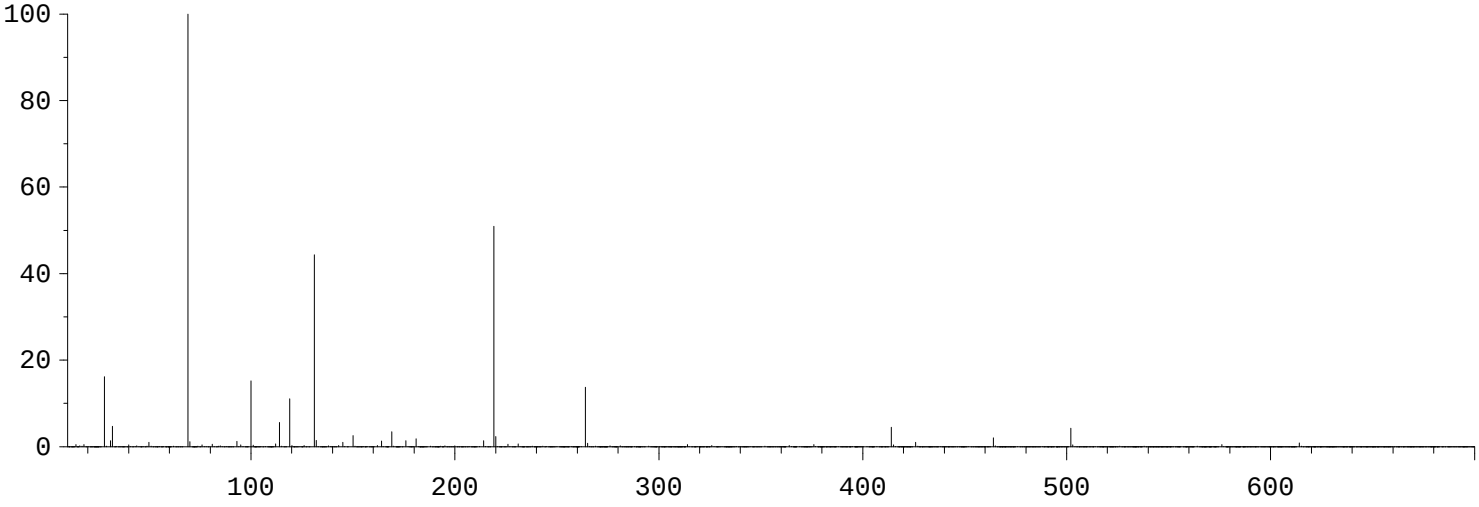


Ion Pol	POS	MassGain	45
		MassOffs	-11
Emission	34.6	AmuGain	2075
EIEnrgy	69.9	AmuOffs	135
Filament	1	Wid219	-0.002
		DC Pol	NEG
Repeller	31.46		
IonFcus	100.6	HEDEnab	ON
EntLens	14.5	EMVolts	1259
EntOffs	22.09		
		Samples	8
PFTBA	OPEN	Averages	3
		Stepsize	0.10

Zones:

MS Source	230	Foreline	40
MS Quad	150		

Scan: 10.00 - 700.00 Samples: 8 Thresh: 0 Step: 0.10
1041 peaks Base: 69.05 Abundance: 374592



Mass	Abund	Rel Abund	Iso Mass	Iso Abund	Iso Ratio
69.05	374592	100.00	70.05	4356	1.16
219.05	190784	50.93	220.05	8742	4.58
502.05	16013	4.27	503.05	1583	9.89

Air/Water Check: H20~0.52% N2~16.18% O2~4.70% CO2~0.16% N2/H2O~3118.48%

Column Flow: Front: 0 Back: 0 ml/min. Interface Temp: 310

Ramp Criteria:
Ion Focus Maximum 125 volts using ion 219; EM Gain 5042
Repeller Maximum 38 volts using ion 502;

MassGain Values @Samples: 45@3 45@2 45@1 45@0 45@FS

TARGET MASS:	50	69	131	219	414	502	800
Amu Offset:	135.0	135.0	135.0	135.0	135.0	135.0	135.0
Entrance Lens Offset:	22.1	22.1	22.1	22.1	22.1	22.1	22.1

Response Factor Report GCMS #8

Method Path : C:\msdchem\1\METHODS\
Method File : PAH160802.M
Title : CLP BNA Calibration - Large Volume Injection
Last Update : Wed Aug 03 10:10:50 2016
Response Via : Initial Calibration

Calibration Files
1 =16080214.D 2 =16080215.D 3 =16080216.D 4 =16080217.D 5 =16080218.D 6 =16080219.D 7 =16080220.D
8 =16080221.D

		Compound	1	2	3	4	5	6	7	8	Avg	%RSD	Fit	RSD/CF	Constant	Linear	Quad
1)	I	Naphthalene-d8	----------ISTD----------														
2)	T	Naphthalene	1.121	0.999	0.975	1.013	0.934	0.903	0.910	0.925	0.973	7.45	A	0.0745	0.0000	0.9726	0.0000
3)	T	2-Methyl napht...	0.631	0.623	0.607	0.644	0.606	0.587	0.592	0.606	0.612	3.17	A	0.0317	0.0000	0.6120	0.0000
4)	T	1-Methyl napht...	0.579	0.555	0.563	0.609	0.559	0.539	0.543	0.548	0.562	4.06	A	0.0406	0.0000	0.5620	0.0000
5)	S	2-Fluorobiphenyl	0.689	0.683	0.660	0.711	0.657	0.634	0.635	0.638	0.663	4.29	A	0.0429	0.0000	0.6633	0.0000
6)	I	Acenaphthene-d10	----------ISTD----------														
7)	T	Acenaphthylene	1.998	1.874	1.874	1.965	1.905	1.853	1.911	1.962	1.918	2.71	A	0.0271	0.0000	1.9178	0.0000
8)	T	Acenaphthene	1.313	1.165	1.218	1.263	1.200	1.157	1.190	1.213	1.215	4.26	A	0.0426	0.0000	1.2150	0.0000
9)	T	Dibenzofuran	1.852	1.719	1.673	1.773	1.700	1.634	1.666	1.756	1.722	4.07	A	0.0407	0.0000	1.7216	0.0000
10)	T	Fluorene	1.559	1.393	1.366	1.489	1.426	1.388	1.430	1.573	1.453	5.44	A	0.0544	0.0000	1.4530	0.0000
11)	I	Phenanthrene-d10	----------ISTD----------														
12)	T	Phenanthrene	1.133	1.195	1.067	1.146	1.065	0.997	1.020	1.029	1.081	6.42	A	0.0642	0.0000	1.0814	0.0000
13)	T	Anthracene	1.163	1.067	1.095	1.250	1.071	1.064	1.073	1.066	1.106	6.04	A	0.0604	0.0000	1.1061	0.0000
14)	T	Fluoranthene	1.561	1.392	1.467	1.543	1.459	1.406	1.447	1.333	1.451	5.23	A	0.0523	0.0000	1.4510	0.0000
15)	S	4-Terphenyl-d14	1.076	0.972	1.036	1.044	1.018	0.967	0.985	0.871	0.996	6.34	A	0.0634	0.0000	0.9962	0.0000
16)	T	Pyrene	1.659	1.466	1.542	1.607	1.521	1.434	1.482	1.338	1.506	6.68	A	0.0668	0.0000	1.5063	0.0000
17)	I	Chrysene-d12	----------ISTD----------														
18)	T	Benzo[a]anthra...	1.050	0.934	0.989	1.109	1.074	1.050	1.077	1.014	1.037	5.38	A	0.0538	0.0000	1.0371	0.0000
19)	T	Chrysene	1.030	0.925	0.954	1.071	1.012	0.984	0.995	0.946	0.990	4.87	A	0.0487	0.0000	0.9896	0.0000
20)	I	Perylene-d12	----------ISTD----------														
21)	T	Benzo[b]fluora...	1.061	0.970	1.041	1.203	1.103	1.079	1.120	1.058	1.079	6.24	A	0.0624	0.0000	1.0793	0.0000
22)	T	Benzo[k]fluora...	0.825	0.748	0.840	1.010	0.999	0.987	1.019	0.959	0.923	11.20	A	0.1120	0.0000	0.9233	0.0000
23)	cp	Benzo(j)fluora...	0.882	0.807	0.868	0.920	0.949	0.922	0.962	0.904	0.902	5.50	A	0.0550	0.0000	0.9018	0.0000
24)	T	Benzo(e)pyrene	1.116	1.002	1.027	1.088	1.049	1.022	1.054	0.997	1.044	3.94	A	0.0394	0.0000	1.0444	0.0000
25)	T	Benzo[a]pyrene	0.979	0.894	0.948	1.085	1.021	0.993	1.028	0.980	0.991	5.76	A	0.0576	0.0000	0.9911	0.0000
26)	T	Indeno[1,2,3-c...	1.086	1.053	1.128	1.287	1.204	1.191	1.234	1.181	1.171	6.63	A	0.0663	0.0000	1.1705	0.0000
27)	T	Dibenz[a,h]ant...	0.936	0.858	0.905	1.039	0.981	0.979	1.021	0.980	0.962	6.22	A	0.0622	0.0000	0.9625	0.0000
28)	T	Benzo[g,h,i]pe...	1.038	0.962	1.006	1.122	1.042	1.003	1.039	1.014	1.028	4.47	A	0.0447	0.0000	1.0282	0.0000

(#) = Out of Range

Sequence Name: C:\msdchem\1\sequence\160802.S
Comment:
Operator:
Data Path: C:\MSDCHEM\1\DATA\160802\
Instrument Name: GCMS #8
Instrument Control Pre-Seq Cmd:
Data Analysis Pre-Seq Cmd:

Instrument Control Post-Seq Cmd:
Data Analysis Post-Seq Cmd:

Method Sections To Run
(X) Full Method
( ) Reprocessing Only

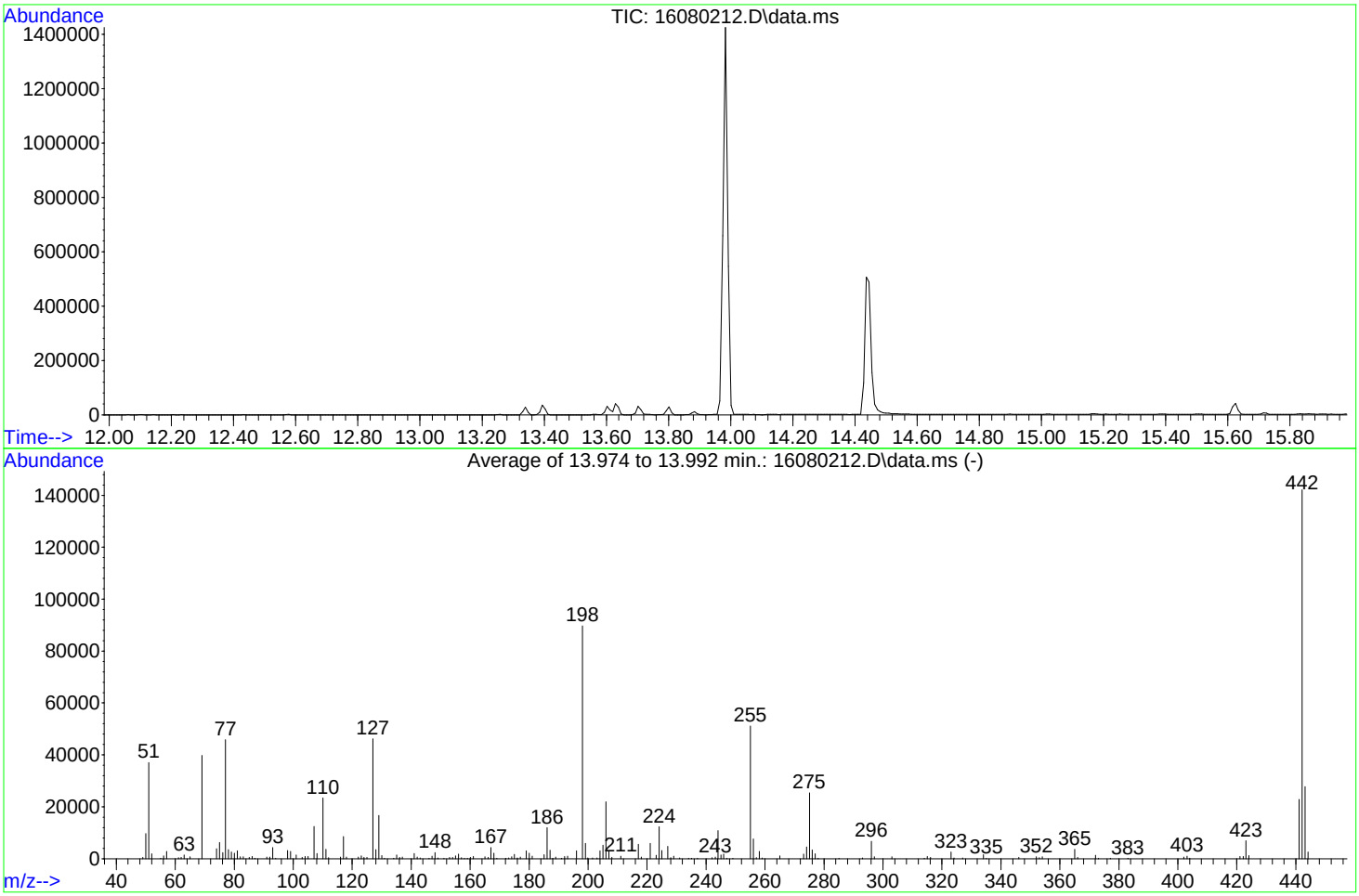
On A Barcode Mismatch
(X) Inject Anyway
( ) Don't Inject

Line			Sample Name/Misc Info		
1)	Sample	1	16080201	DFTPPPCB	DFTPP-160802
2)	Sample	2	16080202	1660-160609	ICV-160802
3)	Sample	3	16080203	1660-160609	ICV-160802
4)	Sample	3	16080204	1660-160609	ICV-160803
5)	Sample	1	16080205	DFTPPPCB	DFTPP-160802
6)	Sample	2	16080206	1660-160609	ICV-160802
7)	Sample	3	16080207	1660-160609	LCS-76577-PCB
8)	Sample	4	16080208	1660-160609	LCSD-76577-PCB
9)	Sample	5	16080209	1660-160609	MB-76577
10)	Sample	6	16080210	1660-160609	1607277-01G

Data Path : C:\msdchem\1\DATA\160802\
Data File : 16080212.D
Acq On : 2 Aug 2016 5:25 pm
Operator :
Sample : DFTPP-160802
Misc : TUNE
ALS Vial : 2 Sample Multiplier: 1

Integration File: RTEINT.P

Method : C:\msdchem\1\METHODS\DFTPPPAH.M
Title : CLP BNA Calibration - Large Volume Injection
Last Update : Thu Aug 27 07:24:43 2015



AutoFind: Scans 429, 430, 431; Background Corrected with Scan 425

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	10	80	41.3	37038	PASS
68	69	0.00	2	0.0	0	PASS
69	198	0.00	100	44.4	39782	PASS
70	69	0.00	2	0.0	0	PASS
127	198	10	80	51.5	46158	PASS
197	198	0.00	2	0.0	0	PASS
198	198	100	100	100.0	89674	PASS
199	198	5	9	6.6	5912	PASS
275	198	10	60	28.4	25423	PASS
365	198	1	200	4.0	3581	PASS
441	442	0.01	24	16.0	22792	PASS
442	198	50	400	158.6	142189	PASS
443	442	15	24	19.5	27730	PASS

REVIEWED/APPROVED
By Sherri Herschmann at 9:56:14 AM, 8/10/2016

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160802\
Data File : 16080214.D
Acq On : 2 Aug 2016 6:44 pm
Operator :
Sample : CAL1 (5 ppb)
Misc : CAL1
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Aug 03 10:24:16 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 10:10:50 2016
Response via : Initial Calibration

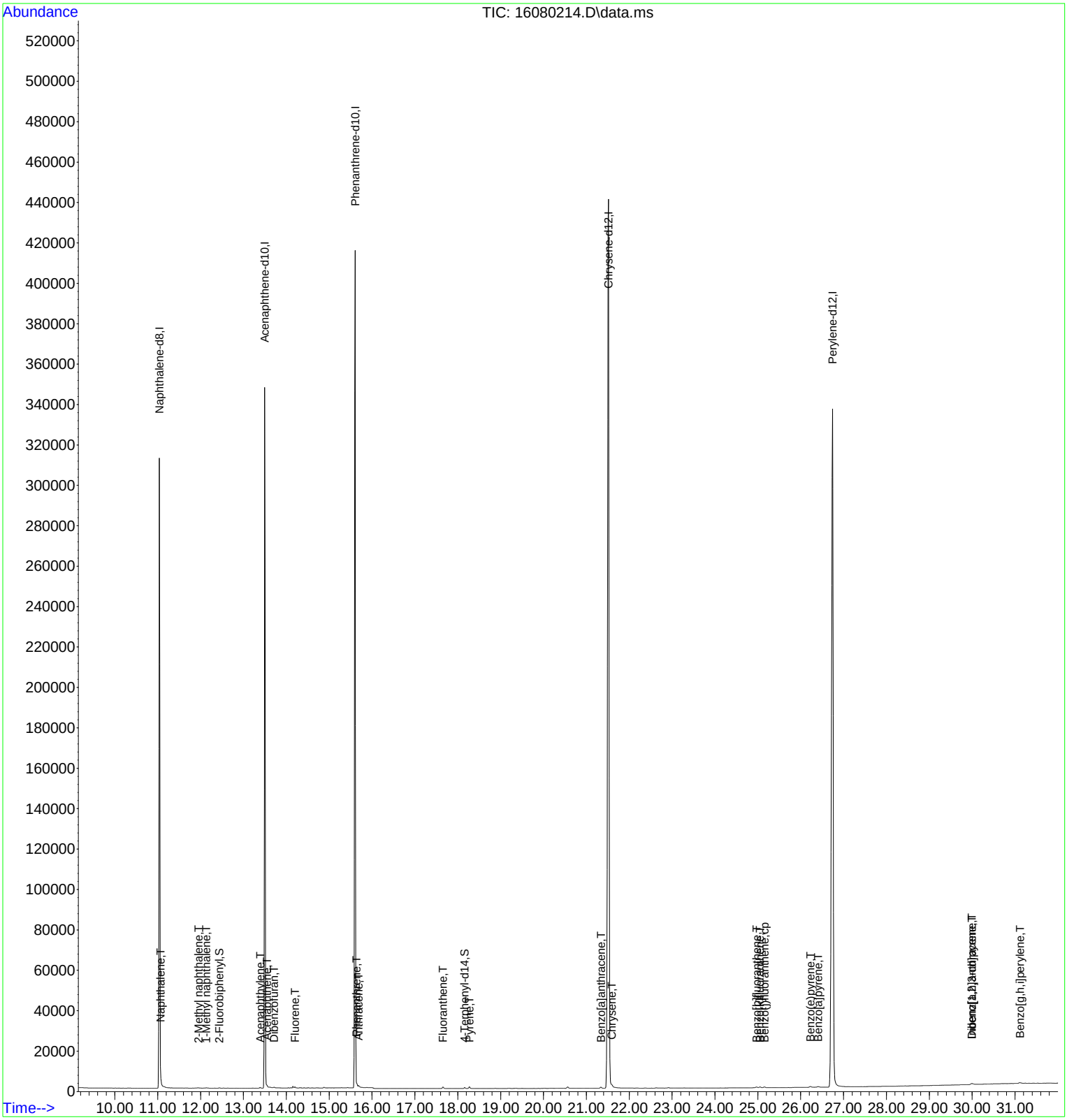
Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	11.038	136	385396	4000.00	ug/kg	98
6) Acenaphthene-d10	13.495	164	185765	4000.00	ug/kg	102
11) Phenanthrene-d10	15.605	188	486418	4000.00	ug/kg	97
17) Chrysene-d12	21.516	240	689401	4000.00	ug/kg	102
20) Perylene-d12	26.741	264	619616	4000.00	ug/kg	101
System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.436	172	332	5.19	ug/kg	0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery = 0.13%#			
15) 4-Terphenyl-d14	18.158	244	654	5.40	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery = 0.14%#			
Target Compounds						Qvalue
2) Naphthalene	11.073	128	540	5.76	ug/kg	100
3) 2-Methyl naphthalene	11.950	142	304	5.16	ug/kg	95
4) 1-Methyl naphthalene	12.132	142	279	5.15	ug/kg	97
7) Acenaphthylene	13.391	152	464	5.21	ug/kg	99
8) Acenaphthene	13.548	153	305	5.41	ug/kg	99
9) Dibenzofuran	13.713	168	430	5.38	ug/kg	75
10) Fluorene	14.199	166	362	5.36	ug/kg	99
12) Phenanthrene	15.640	178	689	5.24	ug/kg	99
13) Anthracene	15.683	178	707	5.26	ug/kg	99
14) Fluoranthene	17.651	202	949	5.38	ug/kg	95
16) Pyrene	18.271	202	1009	5.51	ug/kg	97
18) Benzo[a]anthracene	21.339	228	905	5.06	ug/kg	99
19) Chrysene	21.596	228	888	5.21	ug/kg	97
21) Benzo[b]fluoranthene	24.970	252	822	4.92	ug/kg	94
22) Benzo[k]fluoranthene	25.050	252	639	4.47	ug/kg	95
23) Benzo(j)fluoranthene	25.155	252	683	4.89	ug/kg	97
24) Benzo(e)pyrene	26.226	252	864	5.34	ug/kg	87
25) Benzo[a]pyrene	26.403	252	758	4.94	ug/kg	94
26) Indeno[1,2,3-cd]pyrene	30.002	276	841	4.64	ug/kg	95
27) Dibenz[a,h]anthracene	29.986	278	725	4.86	ug/kg	92
28) Benzo[g,h,i]perylene	31.113	276	804	5.05	ug/kg	98

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160802\
Data File : 16080214.D
Acq On : 2 Aug 2016 6:44 pm
Operator :
Sample : CAL1 (5 ppb)
Misc : CAL1
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Aug 03 10:24:16 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 10:10:50 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160802\
Data File : 16080215.D
Acq On : 2 Aug 2016 7:23 pm
Operator :
Sample : CAL2 (10 ppb)
Misc : CAL2
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Aug 03 10:24:20 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 10:10:50 2016
Response via : Initial Calibration

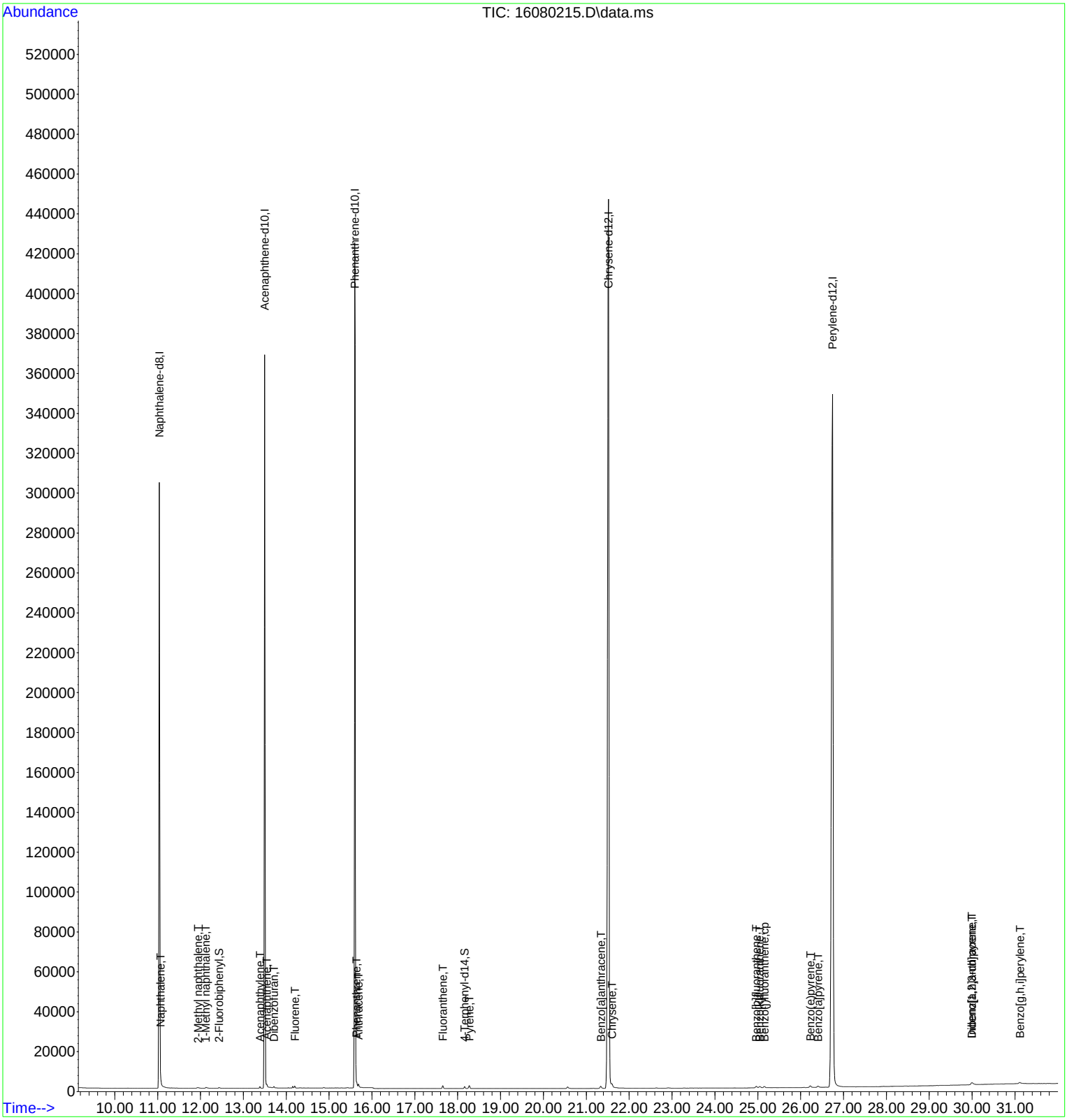
Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	11.041	136	379089	4000.00	ug/kg	97
6) Acenaphthene-d10	13.498	164	187838	4000.00	ug/kg	103
11) Phenanthrene-d10	15.599	188	505178	4000.00	ug/kg	101
17) Chrysene-d12	21.517	240	701631	4000.00	ug/kg	104
20) Perylene-d12	26.742	264	635670	4000.00	ug/kg	104
System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.430	172	647	10.29	ug/kg	0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery = 0.26%#			
15) 4-Terphenyl-d14	18.160	244	1228	9.76	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery = 0.24%#			
Target Compounds						Qvalue
2) Naphthalene	11.076	128	947	10.27	ug/kg	99
3) 2-Methyl naphthalene	11.944	142	590	10.17	ug/kg	97
4) 1-Methyl naphthalene	12.126	142	526	9.88	ug/kg	99
7) Acenaphthylene	13.385	152	880	9.77	ug/kg	99
8) Acenaphthene	13.550	153	547	9.59	ug/kg	98
9) Dibenzofuran	13.715	168	807	9.98	ug/kg	90
10) Fluorene	14.201	166	654	9.59	ug/kg	100
12) Phenanthrene	15.642	178	1509	11.05	ug/kg	99
13) Anthracene	15.686	178	1348	9.65	ug/kg	99
14) Fluoranthene	17.652	202	1758	9.59	ug/kg	98
16) Pyrene	18.272	202	1852	9.74	ug/kg	97
18) Benzo[a]anthracene	21.340	228	1639	9.01	ug/kg	99
19) Chrysene	21.598	228	1623	9.35	ug/kg	98
21) Benzo[b]fluoranthene	24.963	252	1541	8.98	ug/kg	99
22) Benzo[k]fluoranthene	25.052	252	1189	8.10	ug/kg	92
23) Benzo(j)fluoranthene	25.156	252	1282	8.95	ug/kg	97
24) Benzo(e)pyrene	26.227	252	1593	9.60	ug/kg	95
25) Benzo[a]pyrene	26.404	252	1420	9.02	ug/kg	99
26) Indeno[1,2,3-cd]pyrene	30.003	276	1673	8.99	ug/kg	96
27) Dibenz[a,h]anthracene	29.987	278	1364	8.92	ug/kg	97
28) Benzo[g,h,i]perylene	31.114	276	1529	9.36	ug/kg	99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160802\
Data File : 16080215.D
Acq On : 2 Aug 2016 7:23 pm
Operator :
Sample : CAL2 (10 ppb)
Misc : CAL2
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Aug 03 10:24:20 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 10:10:50 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160802\
Data File : 16080216.D
Acq On : 2 Aug 2016 8:03 pm
Operator :
Sample : CAL3 (50 ppb)
Misc : CAL
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Aug 03 10:24:23 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 10:10:50 2016
Response via : Initial Calibration

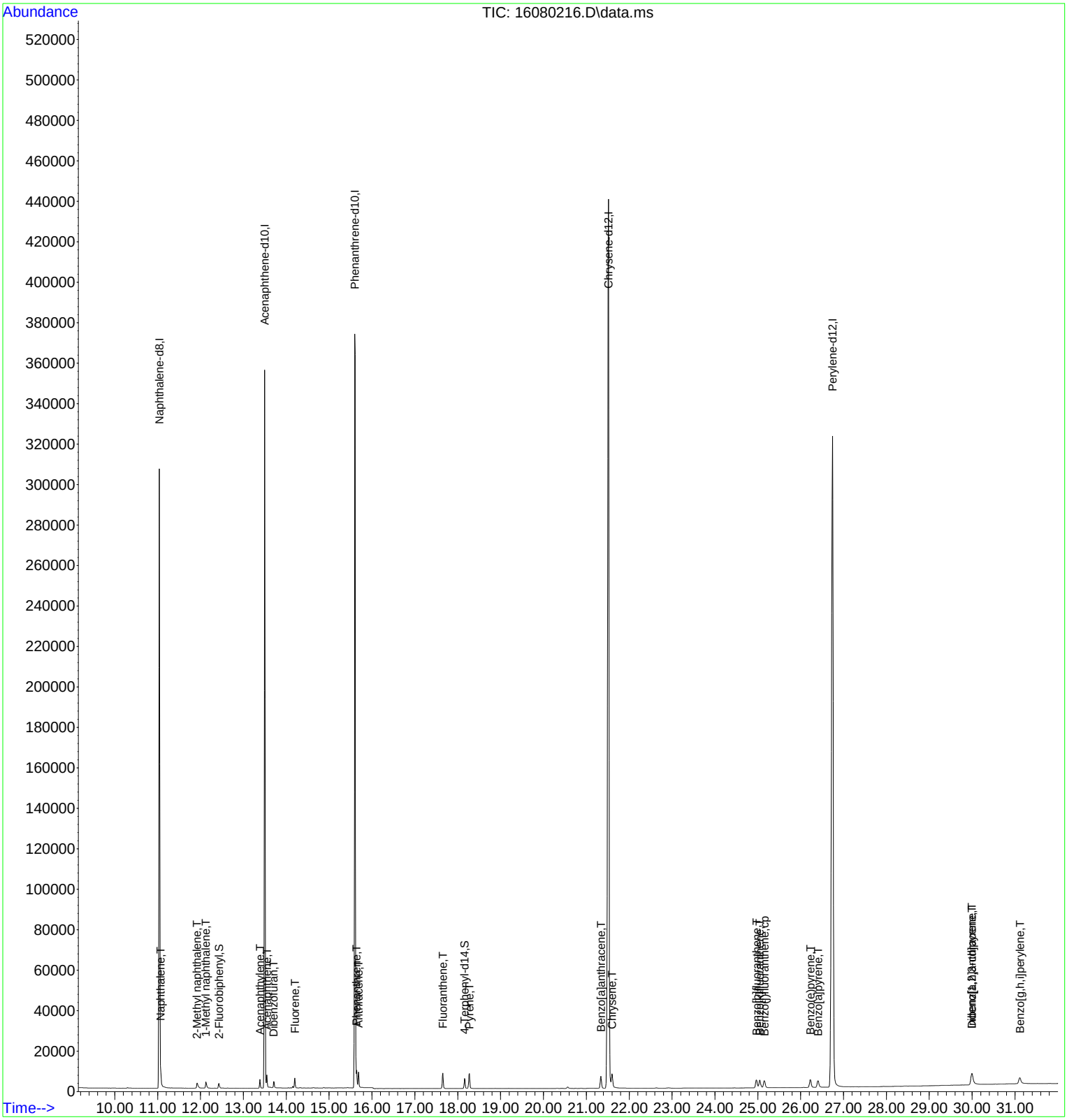
Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	11.040	136	375891	4000.00	ug/kg	96
6) Acenaphthene-d10	13.497	164	180595	4000.00	ug/kg	99
11) Phenanthrene-d10	15.607	188	464427	4000.00	ug/kg	93
17) Chrysene-d12	21.516	240	672646	4000.00	ug/kg	100
20) Perylene-d12	26.741	264	597332	4000.00	ug/kg	97
System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.429	172	3100	49.73	ug/kg	0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery = 1.24%#			
15) 4-Terphenyl-d14	18.158	244	6016	52.01	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery = 1.30%#			
Target Compounds						Qvalue
2) Naphthalene	11.075	128	4581	50.12	ug/kg	100
3) 2-Methyl naphthalene	11.926	142	2854	49.62	ug/kg	96
4) 1-Methyl naphthalene	12.125	142	2646	50.10	ug/kg	99
7) Acenaphthylene	13.384	152	4231	48.86	ug/kg	99
8) Acenaphthene	13.549	153	2750	50.13	ug/kg	98
9) Dibenzofuran	13.714	168	3777	48.59	ug/kg	96
10) Fluorene	14.200	166	3083	47.00	ug/kg	99
12) Phenanthrene	15.642	178	6193	49.32	ug/kg	100
13) Anthracene	15.685	178	6356	49.49	ug/kg	100
14) Fluoranthene	17.651	202	8515	50.54	ug/kg	96
16) Pyrene	18.271	202	8950	51.18	ug/kg	94
18) Benzo[a]anthracene	21.339	228	8316	47.68	ug/kg	99
19) Chrysene	21.596	228	8018	48.18	ug/kg	100
21) Benzo[b]fluoranthene	24.970	252	7771	48.22	ug/kg	99
22) Benzo[k]fluoranthene	25.042	252	6272	45.49	ug/kg	100
23) Benzo(j)fluoranthene	25.155	252	6480	48.12	ug/kg	98
24) Benzo(e)pyrene	26.226	252	7666	49.15	ug/kg	99
25) Benzo[a]pyrene	26.403	252	7080	47.84	ug/kg	99
26) Indeno[1,2,3-cd]pyrene	30.002	276	8423	48.19	ug/kg	96
27) Dibenz[a,h]anthracene	29.986	278	6757	47.01	ug/kg	99
28) Benzo[g,h,i]perylene	31.113	276	7515	48.94	ug/kg	99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160802\
Data File : 16080216.D
Acq On : 2 Aug 2016 8:03 pm
Operator :
Sample : CAL3 (50 ppb)
Misc : CAL
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Aug 03 10:24:23 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 10:10:50 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160802\
Data File : 16080217.D
Acq On : 2 Aug 2016 8:43 pm
Operator :
Sample : CAL4 (100 ppb)
Misc : CAL
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Aug 03 10:24:26 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 10:10:50 2016
Response via : Initial Calibration

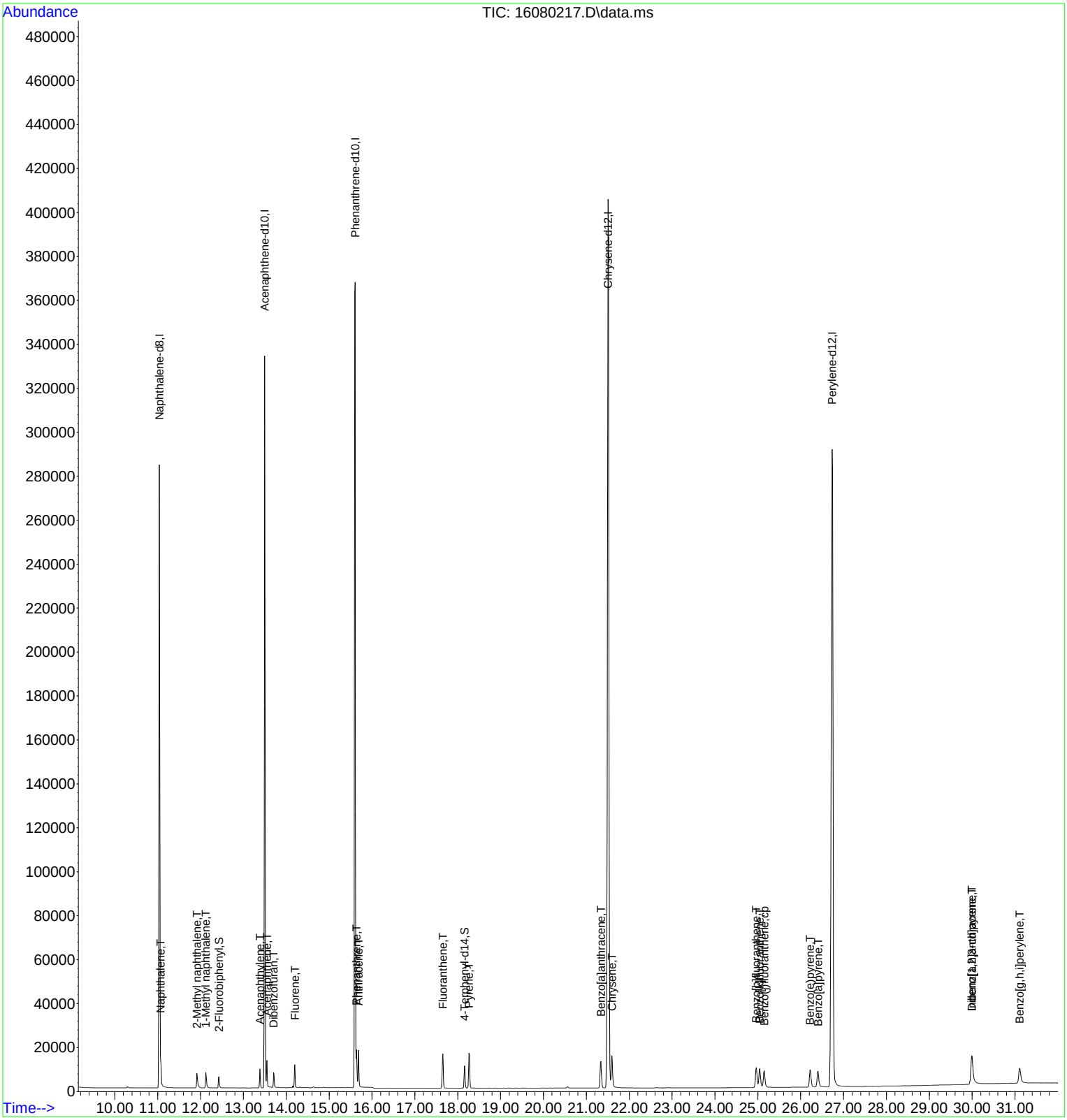
Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	11.039	136	343877	4000.00	ug/kg	88
6) Acenaphthene-d10	13.496	164	171051	4000.00	ug/kg	94
11) Phenanthrene-d10	15.606	188	460478	4000.00	ug/kg	92
17) Chrysene-d12	21.508	240	638849	4000.00	ug/kg	95
20) Perylene-d12	26.734	264	558956	4000.00	ug/kg	91
System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.428	172	6112	107.18	ug/kg	0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery = 2.68%#			
15) 4-Terphenyl-d14	18.159	244	12023	104.84	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery = 2.62%#			
Target Compounds						Qvalue
2) Naphthalene	11.074	128	8705	104.11	ug/kg	99
3) 2-Methyl naphthalene	11.916	142	5539	105.27	ug/kg	99
4) 1-Methyl naphthalene	12.124	142	5236	108.38	ug/kg	97
7) Acenaphthylene	13.383	152	8405	102.49	ug/kg	99
8) Acenaphthene	13.548	153	5402	103.97	ug/kg	99
9) Dibenzofuran	13.704	168	7582	102.99	ug/kg	71
10) Fluorene	14.199	166	6369	102.51	ug/kg	99
12) Phenanthrene	15.640	178	13188	105.94	ug/kg	99
13) Anthracene	15.684	178	14388	113.00	ug/kg	99
14) Fluoranthene	17.652	202	17768	106.37	ug/kg	94
16) Pyrene	18.264	202	18501	106.70	ug/kg	100
18) Benzo[a]anthracene	21.339	228	17710	106.92	ug/kg	99
19) Chrysene	21.597	228	17109	108.25	ug/kg	98
21) Benzo[b]fluoranthene	24.962	252	16805	111.43	ug/kg	99
22) Benzo[k]fluoranthene	25.043	252	14107	109.34	ug/kg	99
23) Benzo(j)fluoranthene	25.148	252	12862	102.07	ug/kg	98
24) Benzo(e)pyrene	26.218	252	15197	104.13	ug/kg	99
25) Benzo[a]pyrene	26.404	252	15166	109.50	ug/kg	97
26) Indeno[1,2,3-cd]pyrene	29.995	276	17985	109.95	ug/kg	97
27) Dibenz[a,h]anthracene	29.987	278	14518	107.94	ug/kg	99
28) Benzo[g,h,i]perylene	31.106	276	15672	109.07	ug/kg	97

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160802\
Data File : 16080217.D
Acq On : 2 Aug 2016 8:43 pm
Operator :
Sample : CAL4 (100 ppb)
Misc : CAL
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Aug 03 10:24:26 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 10:10:50 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160802\
Data File : 16080218.D
Acq On : 2 Aug 2016 9:22 pm
Operator :
Sample : CAL5 (500 ppb)
Misc : CAL
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Aug 03 10:24:29 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 10:10:50 2016
Response via : Initial Calibration

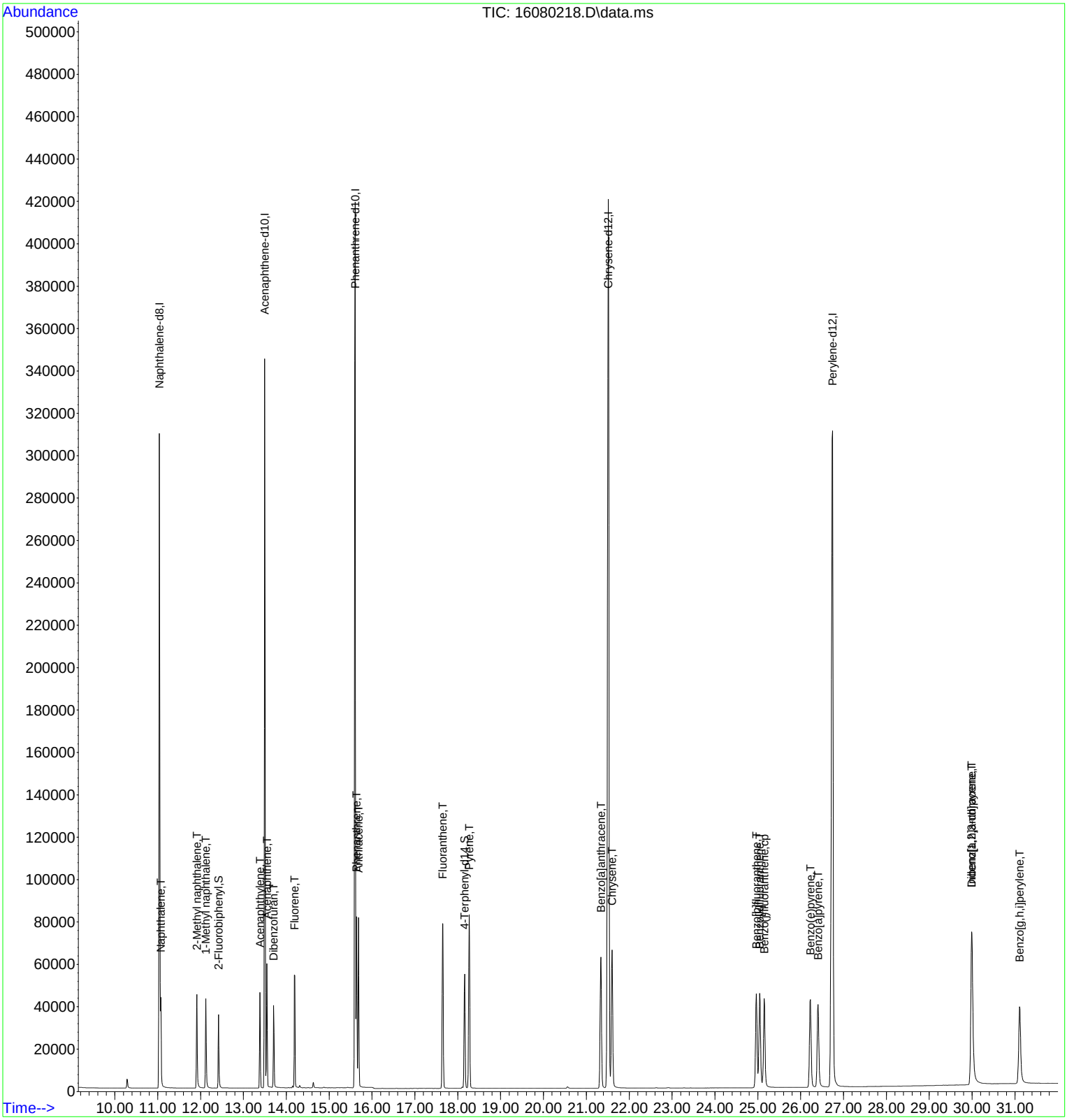
Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	11.038	136	368275	4000.00	ug/kg	94
6) Acenaphthene-d10	13.495	164	176937	4000.00	ug/kg	97
11) Phenanthrene-d10	15.605	188	485885	4000.00	ug/kg	97
17) Chrysene-d12	21.509	240	652222	4000.00	ug/kg	97
20) Perylene-d12	26.743	264	588578	4000.00	ug/kg	96
System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.419	172	30251	495.32	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 12.38%#			
15) 4-Terphenyl-d14	18.160	244	61828	510.93	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery = 12.77%#			
Target Compounds						Qvalue
2) Naphthalene	11.073	128	42986	480.06	ug/kg	99
3) 2-Methyl naphthalene	11.915	142	27883	494.84	ug/kg	96
4) 1-Methyl naphthalene	12.123	142	25752	497.71	ug/kg	97
7) Acenaphthylene	13.382	152	42130	496.62	ug/kg	99
8) Acenaphthene	13.547	153	26543	493.86	ug/kg	97
9) Dibenzofuran	13.704	168	37605	493.80	ug/kg	78
10) Fluorene	14.198	166	31546	490.83	ug/kg	99
12) Phenanthrene	15.640	178	64655	492.20	ug/kg	100
13) Anthracene	15.683	178	65057	484.21	ug/kg	99
14) Fluoranthene	17.653	202	88604	502.70	ug/kg	94
16) Pyrene	18.265	202	92404	505.03	ug/kg	99
18) Benzo[a]anthracene	21.340	228	87577	517.87	ug/kg	100
19) Chrysene	21.598	228	82501	511.27	ug/kg	99
21) Benzo[b]fluoranthene	24.963	252	81152	511.01	ug/kg	100
22) Benzo[k]fluoranthene	25.044	252	73470	540.79	ug/kg	99
23) Benzo(j)fluoranthene	25.149	252	69856	526.44	ug/kg	99
24) Benzo(e)pyrene	26.227	252	77212	502.44	ug/kg	100
25) Benzo[a]pyrene	26.405	252	75123	515.12	ug/kg	98
26) Indeno[1,2,3-cd]pyrene	29.996	276	88606	514.44	ug/kg	99
27) Dibenz[a,h]anthracene	29.988	278	72169	509.58	ug/kg	99
28) Benzo[g,h,i]perylene	31.107	276	76652	506.64	ug/kg	97

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160802\
Data File : 16080218.D
Acq On : 2 Aug 2016 9:22 pm
Operator :
Sample : CAL5 (500 ppb)
Misc : CAL
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Aug 03 10:24:29 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 10:10:50 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160802\
Data File : 16080219.D
Acq On : 2 Aug 2016 10:02 pm
Operator :
Sample : CAL6 (1000 ppb)
Misc : CAL
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Aug 03 10:24:32 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 10:10:50 2016
Response via : Initial Calibration

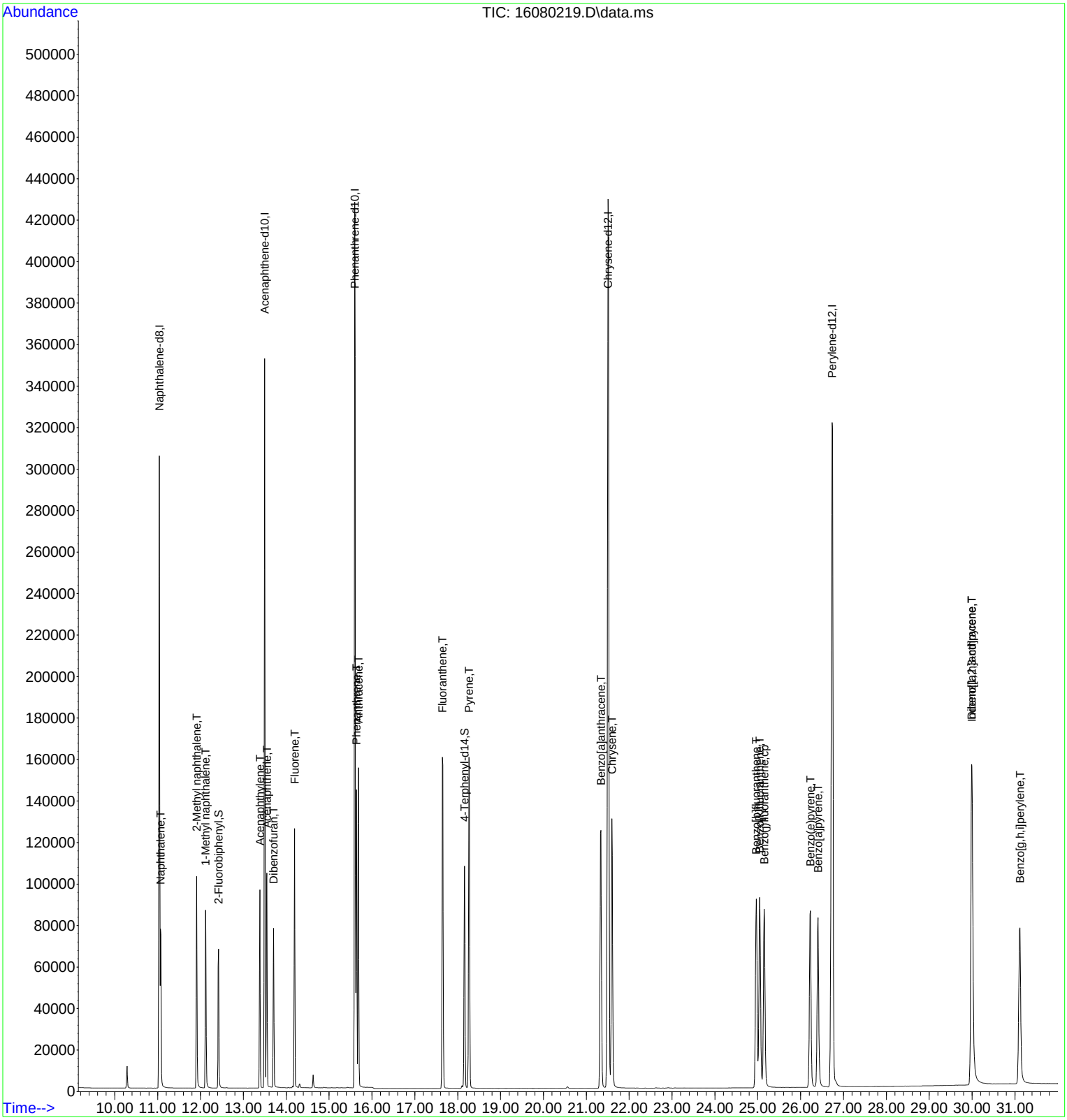
Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	11.040	136	386528	4000.00	ug/kg	98
6) Acenaphthene-d10	13.497	164	183850	4000.00	ug/kg	101
11) Phenanthrene-d10	15.598	188	503015	4000.00	ug/kg	101
17) Chrysene-d12	21.509	240	674037	4000.00	ug/kg	100
20) Perylene-d12	26.734	264	614870	4000.00	ug/kg	100
System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.420	172	61248	955.51	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 23.89%#			
15) 4-Terphenyl-d14	18.159	244	121618	970.79	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery = 24.27%#			
Target Compounds						Qvalue
2) Naphthalene	11.075	128	87297	928.87	ug/kg	99
3) 2-Methyl naphthalene	11.908	142	56717	959.02	ug/kg	99
4) 1-Methyl naphthalene	12.117	142	52067	958.79	ug/kg	99
7) Acenaphthylene	13.384	152	85164	966.14	ug/kg	100
8) Acenaphthene	13.549	153	53195	952.53	ug/kg	97
9) Dibenzofuran	13.705	168	75106	949.15	ug/kg	95
10) Fluorene	14.192	166	63783	955.09	ug/kg	99
12) Phenanthrene	15.642	178	125420	922.27	ug/kg	100
13) Anthracene	15.685	178	133772	961.74	ug/kg	100
14) Fluoranthene	17.644	202	176788	968.87	ug/kg	99
16) Pyrene	18.264	202	180373	952.26	ug/kg	99
18) Benzo[a]anthracene	21.340	228	176880	1012.10	ug/kg	100
19) Chrysene	21.597	228	165784	994.14	ug/kg	99
21) Benzo[b]fluoranthene	24.963	252	165843	999.64	ug/kg	99
22) Benzo[k]fluoranthene	25.043	252	151774	1069.39	ug/kg	100
23) Benzo(j)fluoranthene	25.148	252	141728	1022.41	ug/kg	99
24) Benzo(e)pyrene	26.227	252	157087	978.50	ug/kg	100
25) Benzo[a]pyrene	26.404	252	152694	1002.25	ug/kg	98
26) Indeno[1,2,3-cd]pyrene	30.003	276	183022	1017.18	ug/kg	93
27) Dibenz[a,h]anthracene	29.987	278	150487	1017.15	ug/kg	100
28) Benzo[g,h,i]perylene	31.114	276	154189	975.54	ug/kg	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160802\
Data File : 16080219.D
Acq On : 2 Aug 2016 10:02 pm
Operator :
Sample : CAL6 (1000 ppb)
Misc : CAL
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Aug 03 10:24:32 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 10:10:50 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160802\
Data File : 16080220.D
Acq On : 2 Aug 2016 10:42 pm
Operator :
Sample : CAL7 (2000 ppb)
Misc : CAL
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Aug 03 10:24:35 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 10:10:50 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	11.041	136	392416	4000.00	ug/kg	100
6) Acenaphthene-d10	13.498	164	182713	4000.00	ug/kg	100
11) Phenanthrene-d10	15.599	188	499349	4000.00	ug/kg	100
17) Chrysene-d12	21.509	240	673020	4000.00	ug/kg	100
20) Perylene-d12	26.742	264	612847	4000.00	ug/kg	100

System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.413	172	124577	1914.32	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 47.86%			
15) 4-Terphenyl-d14	18.160	244	245963	1977.75	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery = 49.44%#			

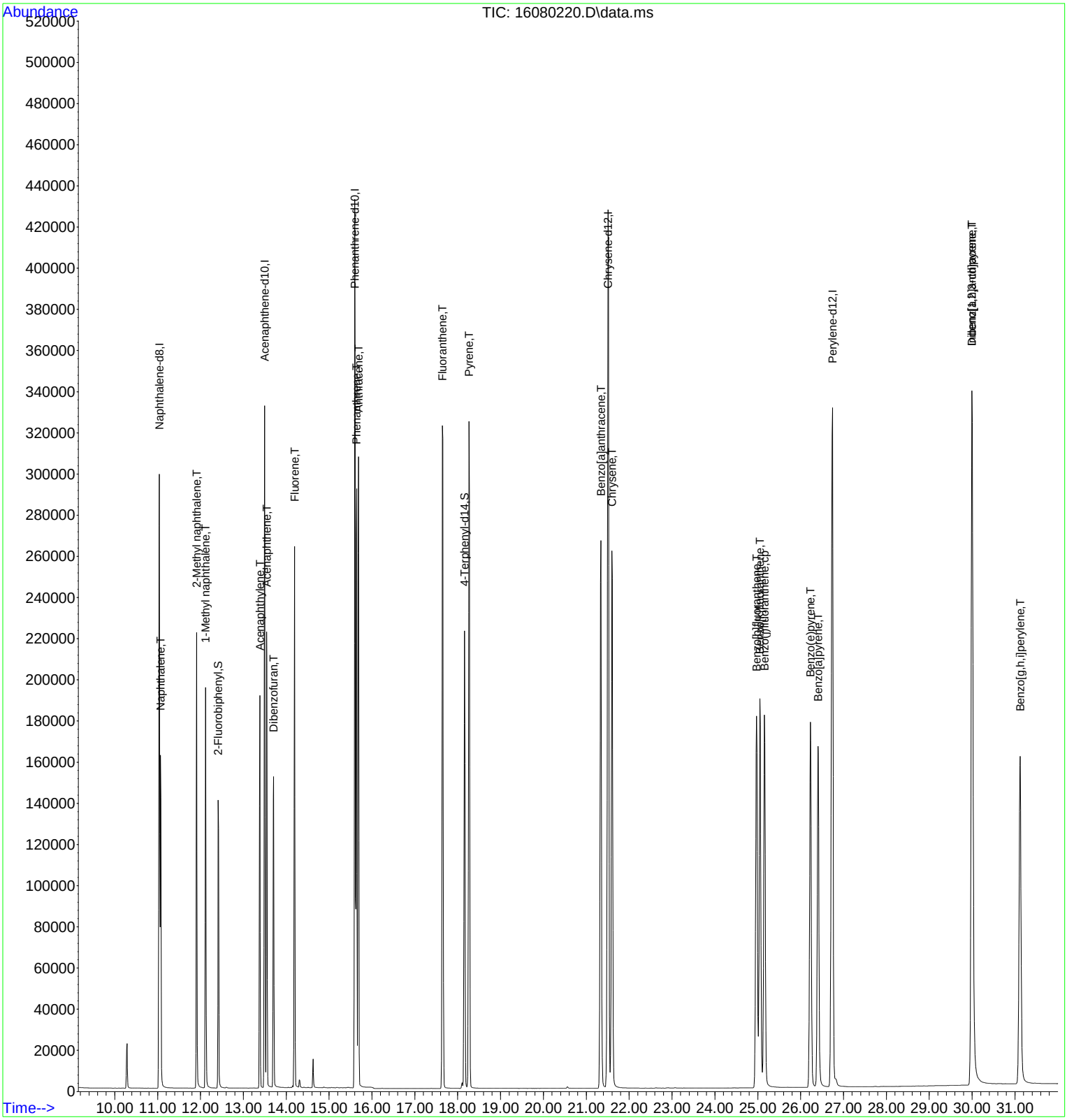
Target Compounds						Qvalue
2) Naphthalene	11.067	128	178638	1872.25	ug/kg	100
3) 2-Methyl naphthalene	11.909	142	116176	1934.93	ug/kg	100
4) 1-Methyl naphthalene	12.117	142	106548	1932.59	ug/kg	100
7) Acenaphthylene	13.385	152	174601	1993.09	ug/kg	100
8) Acenaphthene	13.541	153	108721	1958.92	ug/kg	100
9) Dibenzofuran	13.706	168	152226	1935.72	ug/kg	100
10) Fluorene	14.192	166	130611	1967.95	ug/kg	100
12) Phenanthrene	15.642	178	254637	1886.22	ug/kg	100
13) Anthracene	15.686	178	267809	1939.53	ug/kg	100
14) Fluoranthene	17.644	202	361336	1994.80	ug/kg	100
16) Pyrene	18.264	202	369951	1967.45	ug/kg	100
18) Benzo[a]anthracene	21.340	228	362283	2076.10	ug/kg	100
19) Chrysene	21.598	228	334873	2011.13	ug/kg	100
21) Benzo[b]fluoranthene	24.971	252	343274	2075.96	ug/kg	100
22) Benzo[k]fluoranthene	25.052	252	312137	2206.56	ug/kg	100
23) Benzo(j)fluoranthene	25.156	252	294707	2133.00	ug/kg	100
24) Benzo(e)pyrene	26.227	252	323026	2018.78	ug/kg	100
25) Benzo[a]pyrene	26.404	252	315127	2075.24	ug/kg	100
26) Indeno[1,2,3-cd]pyrene	30.003	276	378254	2109.15	ug/kg	100
27) Dibenz[a,h]anthracene	29.995	278	312978	2122.41	ug/kg	100
28) Benzo[g,h,i]perylene	31.122	276	318362	2020.90	ug/kg	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160802\
Data File : 16080220.D
Acq On : 2 Aug 2016 10:42 pm
Operator :
Sample : CAL7 (2000 ppb)
Misc : CAL
ALS Vial : 10 Sample Multiplier: 1

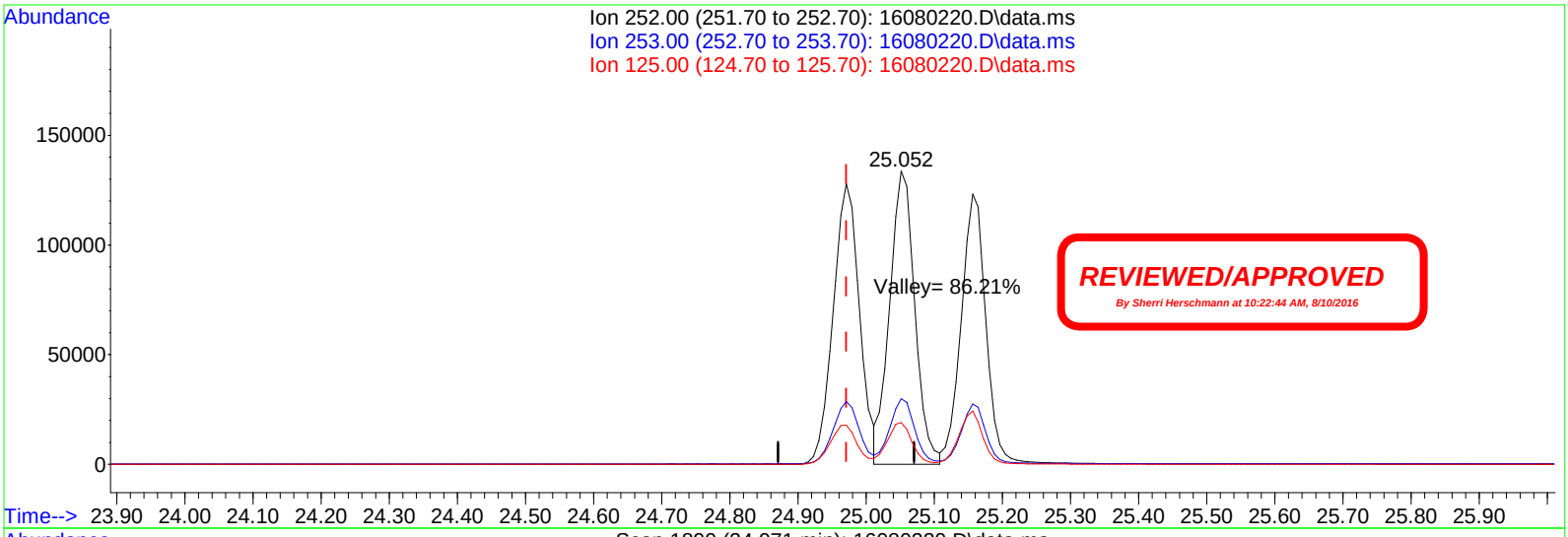
Quant Time: Aug 03 10:24:35 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 10:10:50 2016
Response via : Initial Calibration

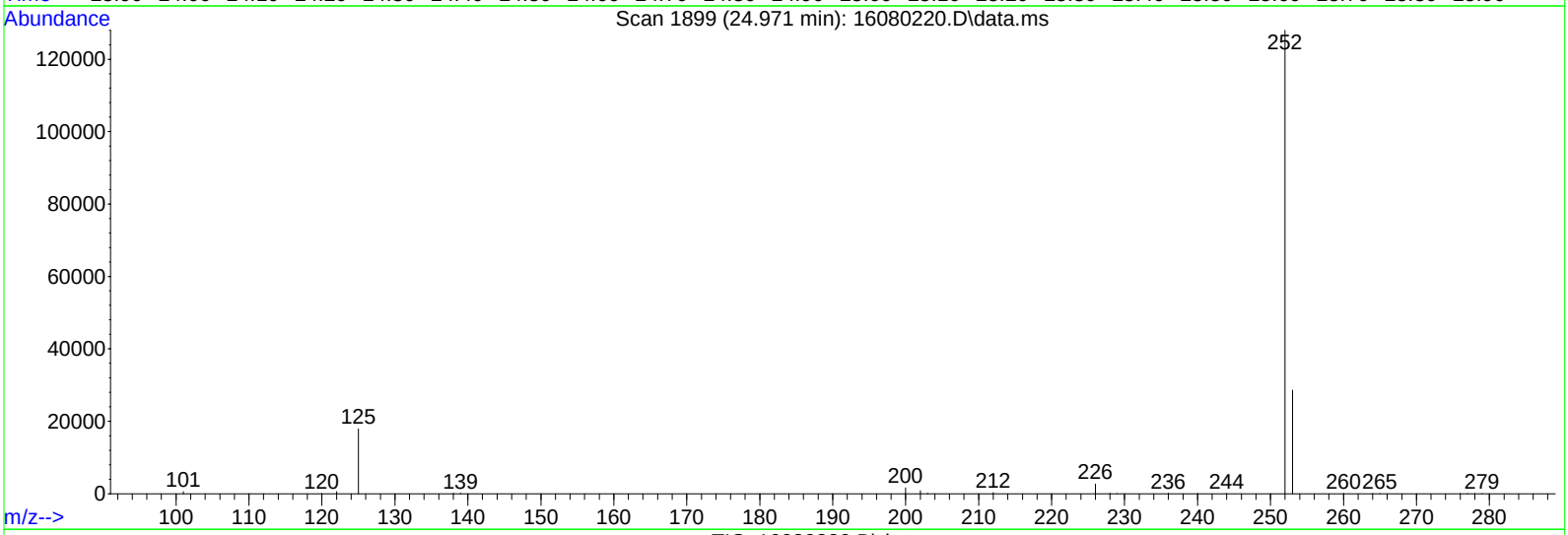


Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\160802\
Data File : 16080220.D
Acq On : 2 Aug 2016 10:42 pm
Operator :
Sample : CAL7 (2000 ppb)
Misc : CAL
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Aug 03 10:24:35 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 10:10:50 2016
Response via : Initial Calibration





TIC: 16080220.D\data.ms

(21) Benzo[b]fluoranthene (T)

24.971min (+0.000) 2075.96ug/kg

response 343274

Ion	Exp%	Act%
252.00	100	100
253.00	22.10	22.12
125.00	13.90	13.91
0.00	0.00	0.00

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160802\
Data File : 16080221.D
Acq On : 2 Aug 2016 11:22 pm
Operator :
Sample : CAL8 (5000 ppb)
Misc : CAL
ALS Vial : 11 Sample Multiplier: 1

Quant Time: Aug 03 10:24:38 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 10:10:50 2016
Response via : Initial Calibration

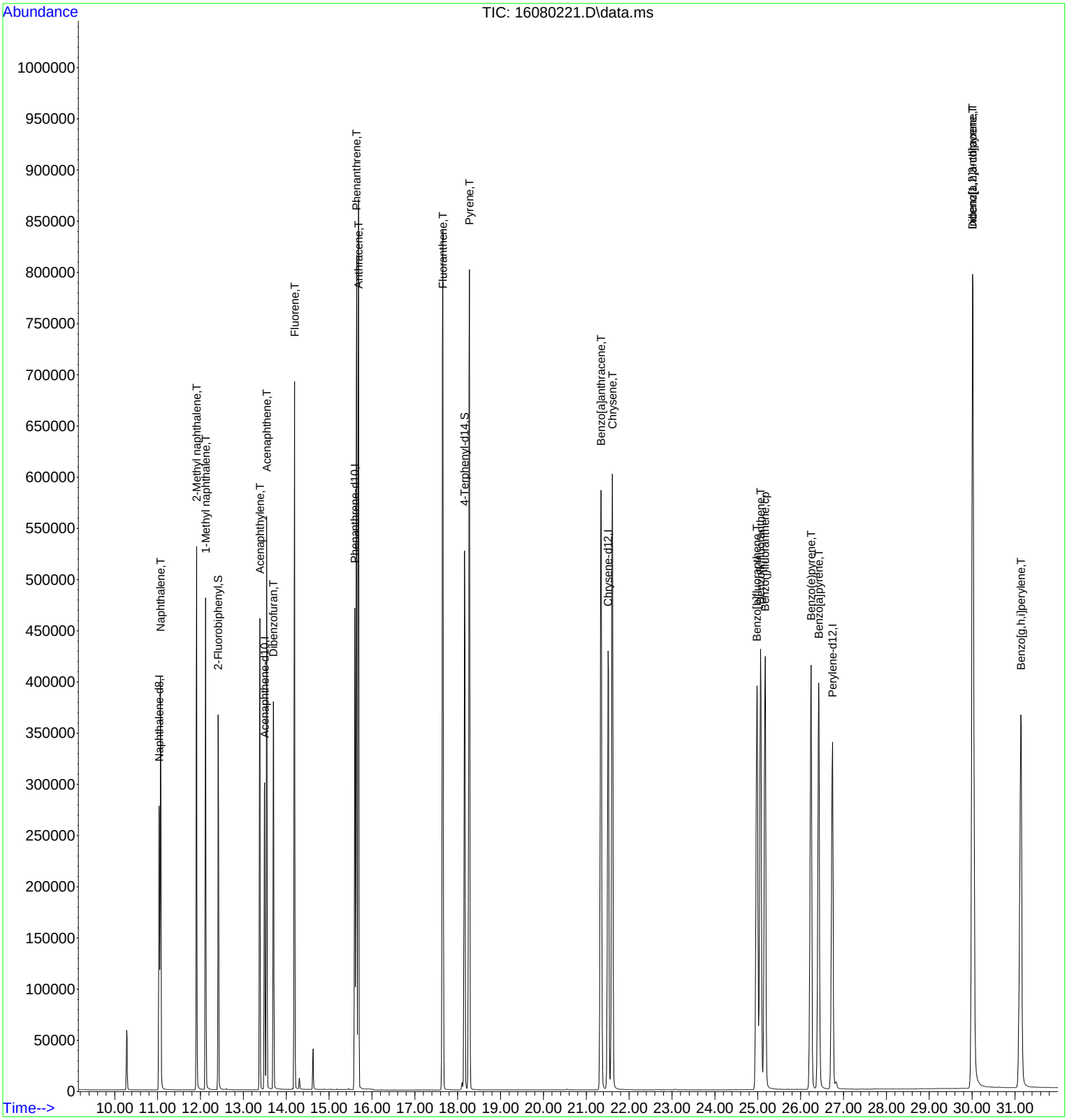
Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	11.033	136	373369	4000.00	ug/kg	95
6) Acenaphthene-d10	13.498	164	175178	4000.00	ug/kg	96
11) Phenanthrene-d10	15.600	188	536214	4000.00	ug/kg	107
17) Chrysene-d12	21.509	240	675690	4000.00	ug/kg	100
20) Perylene-d12	26.743	264	617609	4000.00	ug/kg	101
System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.413	172	297892	4811.08	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 120.28%			
15) 4-Terphenyl-d14	18.160	244	583710	4370.85	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery = 109.27%			
Target Compounds						Qvalue
2) Naphthalene	11.067	128	431837	4756.84	ug/kg	100
3) 2-Methyl naphthalene	11.910	142	282882	4951.78	ug/kg	99
4) 1-Methyl naphthalene	12.118	142	255849	4877.39	ug/kg	99
7) Acenaphthylene	13.386	152	429570	5114.51	ug/kg	99
8) Acenaphthene	13.542	153	265597	4991.34	ug/kg	99
9) Dibenzofuran	13.707	168	384477	5099.35	ug/kg	100
10) Fluorene	14.193	166	344510	5414.09	ug/kg	99
12) Phenanthrene	15.643	178	689747	4758.01	ug/kg	98
13) Anthracene	15.686	178	714677	4819.99	ug/kg	98
14) Fluoranthene	17.653	202	893543	4593.78	ug/kg	100
16) Pyrene	18.273	202	896708	4440.95	ug/kg	99
18) Benzo[a]anthracene	21.348	228	856483	4888.77	ug/kg	99
19) Chrysene	21.606	228	798613	4777.24	ug/kg	99
21) Benzo[b]fluoranthene	24.988	252	816512	4899.81	ug/kg	99
22) Benzo[k]fluoranthene	25.068	252	740334	5193.21	ug/kg	99
23) Benzo(j)fluoranthene	25.173	252	698109	5013.74	ug/kg	99
24) Benzo(e)pyrene	26.244	252	769905	4774.49	ug/kg	99
25) Benzo[a]pyrene	26.421	252	756854	4945.77	ug/kg	99
26) Indeno[1,2,3-cd]pyrene	30.020	276	911879	5045.44	ug/kg	93
27) Dibenz[a,h]anthracene	30.012	278	756782	5092.43	ug/kg	96
28) Benzo[g,h,i]perylene	31.139	276	782544	4929.14	ug/kg	96

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160802\
Data File : 16080221.D
Acq On : 2 Aug 2016 11:22 pm
Operator :
Sample : CAL8 (5000 ppb)
Misc : CAL
ALS Vial : 11 Sample Multiplier: 1

Quant Time: Aug 03 10:24:38 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 10:10:50 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160802\
Data File : 16080222.D
Acq On : 3 Aug 2016 12:02 am
Operator :
Sample : SSCV (2500 ppb)
Misc : ICV
ALS Vial : 12 Sample Multiplier: 1

SSCV FOR DIBENZOFURAN AND BENZO(J)FLUORANTHENE.

Quant Time: Aug 03 10:24:41 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 10:10:50 2016
Response via : Initial Calibration

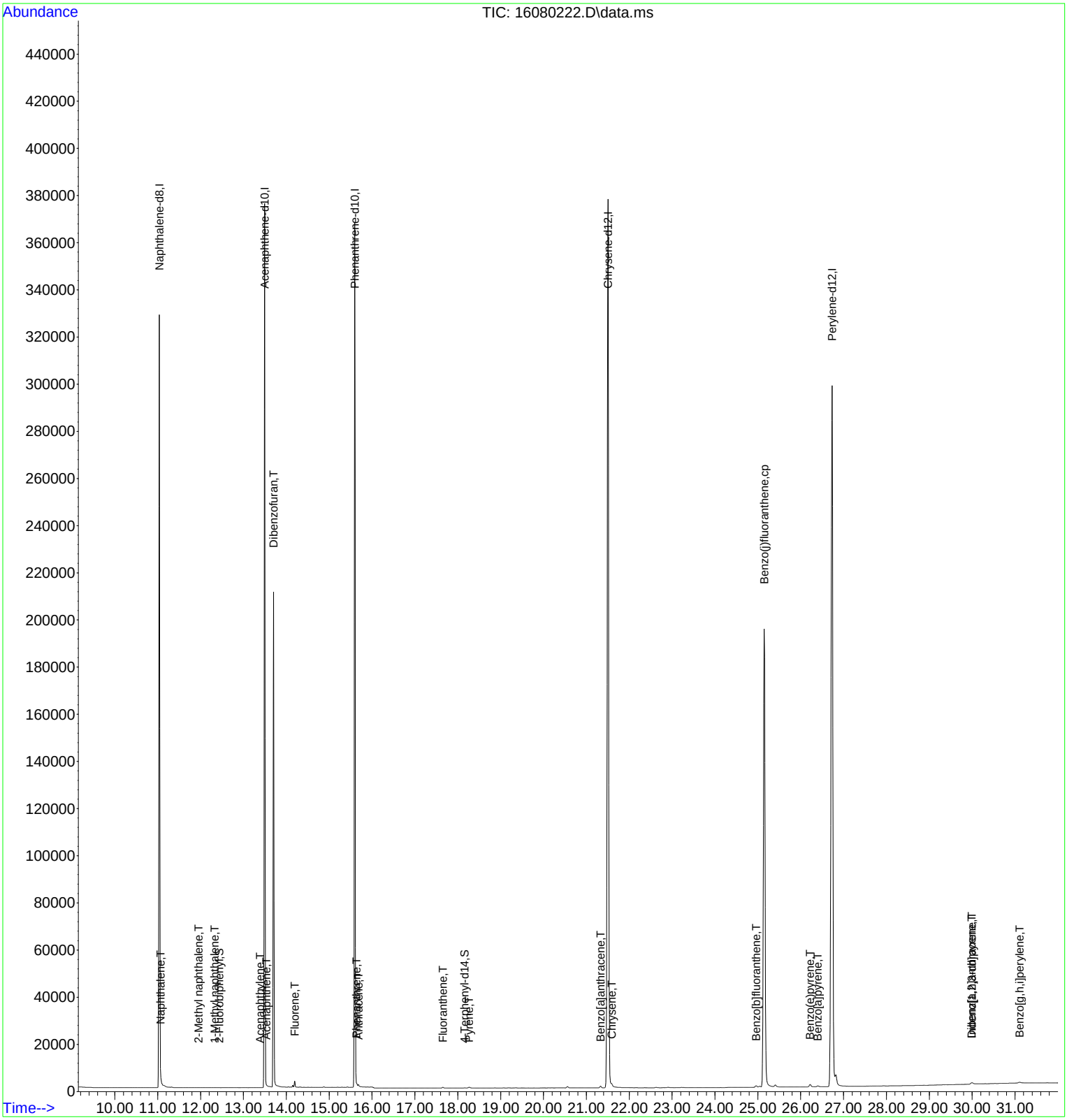
Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	11.039	136	409796	4000.00	ug/kg	104
6) Acenaphthene-d10	13.496	164	199013	4000.00	ug/kg	109
11) Phenanthrene-d10	15.597	188	416210	4000.00	ug/kg	83
17) Chrysene-d12	21.508	240	579641	4000.00	ug/kg	86
20) Perylene-d12	26.733	264	555774	4000.00	ug/kg	91
System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.445	172	17	0.25	ug/kg	0.03
Spiked Amount 4000.000	Range 40 - 140		Recovery =	0.01%#		
15) 4-Terphenyl-d14	18.158	244	83	0.80	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery =	0.02%#		
Target Compounds						Qvalue
2) Naphthalene	11.074	128	64	0.64	ug/kg	87
3) 2-Methyl naphthalene	11.950	142	46	0.73	ug/kg	89
4) 1-Methyl naphthalene	12.315	142	3	0.05	ug/kg	91
7) Acenaphthylene	13.383	152	54	0.57	ug/kg	92
8) Acenaphthene	13.539	153	55	0.91	ug/kg	95
9) Dibenzofuran	13.704	168	201819	2356.16	ug/kg	95
10) Fluorene	14.199	166	1707	23.61	ug/kg	98
12) Phenanthrene	15.640	178	344	3.06	ug/kg	95
13) Anthracene	15.684	178	786	6.83	ug/kg	98
14) Fluoranthene	17.651	202	470	3.11	ug/kg	93
16) Pyrene	18.263	202	542	3.46	ug/kg	97
18) Benzo[a]anthracene	21.331	228	1114	7.41	ug/kg	100
19) Chrysene	21.588	228	1022	7.13	ug/kg	98
21) Benzo[b]fluoranthene	24.962	252	1420	9.47	ug/kg	97
22) Benzo[k]fluoranthene	0.000	252	0	N.D.		
23) Benzo(j)fluoranthene	25.147	252	340750	2719.50	ug/kg	100
24) Benzo(e)pyrene	26.218	252	2186	15.06	ug/kg	92
25) Benzo[a]pyrene	26.395	252	1015	7.37	ug/kg	91
26) Indeno[1,2,3-cd]pyrene	29.994	276	1140	7.01	ug/kg	97
27) Dibenz[a,h]anthracene	29.978	278	865	6.47	ug/kg	94
28) Benzo[g,h,i]perylene	31.105	276	977	6.84	ug/kg	99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160802\
Data File : 16080222.D
Acq On : 3 Aug 2016 12:02 am
Operator :
Sample : SSCV (2500 ppb)
Misc : ICV
ALS Vial : 12 Sample Multiplier: 1

Quant Time: Aug 03 10:24:41 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 10:10:50 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160802\
Data File : 16080223.D
Acq On : 3 Aug 2016 12:41 am
Operator :
Sample : SSCV (2500 ppb)
Misc : ICV
ALS Vial : 13 Sample Multiplier: 1

Quant Time: Aug 03 10:24:44 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 10:10:50 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	11.038	136	354743	4000.00	ug/kg	90
6) Acenaphthene-d10	13.495	164	172034	4000.00	ug/kg	94
11) Phenanthrene-d10	15.596	188	502241	4000.00	ug/kg	101
17) Chrysene-d12	21.509	240	626135	4000.00	ug/kg	93
20) Perylene-d12	26.735	264	562739	4000.00	ug/kg	92
System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.419	172	159493	2711.13	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 67.78%			
15) 4-Terphenyl-d14	18.160	244	329186	2631.70	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery = 65.79%			
Target Compounds						Qvalue
2) Naphthalene	11.073	128	203065	2354.28	ug/kg	99
3) 2-Methyl naphthalene	11.906	142	161750	2980.06	ug/kg	99
4) 1-Methyl naphthalene	12.123	142	142715	2863.50	ug/kg	95
7) Acenaphthylene	13.382	152	202502	2455.08	ug/kg	99
8) Acenaphthene	13.547	153	132224	2530.28	ug/kg	96
9) Dibenzofuran	13.712	168	495	6.69	ug/kg	88
10) Fluorene	14.190	166	163278	2612.86	ug/kg	99
12) Phenanthrene	15.640	178	319541	2353.36	ug/kg	99
13) Anthracene	15.683	178	319725	2302.18	ug/kg	99
14) Fluoranthene	17.645	202	446111	2448.63	ug/kg	99
16) Pyrene	18.264	202	451874	2389.28	ug/kg	99
18) Benzo[a]anthracene	21.340	228	413562	2547.42	ug/kg	100
19) Chrysene	21.598	228	341645	2205.44	ug/kg	100
21) Benzo[b]fluoranthene	24.971	252	396136	2608.96	ug/kg	100
22) Benzo[k]fluoranthene	25.052	252	366344	2820.36	ug/kg	99
23) Benzo(j)fluoranthene	0.000	252	0	N.D.		
24) Benzo(e)pyrene	26.227	252	383637	2611.06	ug/kg	100
25) Benzo[a]pyrene	26.405	252	367902	2638.52	ug/kg	99
26) Indeno[1,2,3-cd]pyrene	30.004	276	425376	2583.10	ug/kg	99
27) Dibenz[a,h]anthracene	29.995	278	349484	2581.00	ug/kg	100
28) Benzo[g,h,i]perylene	31.123	276	362596	2506.64	ug/kg	100

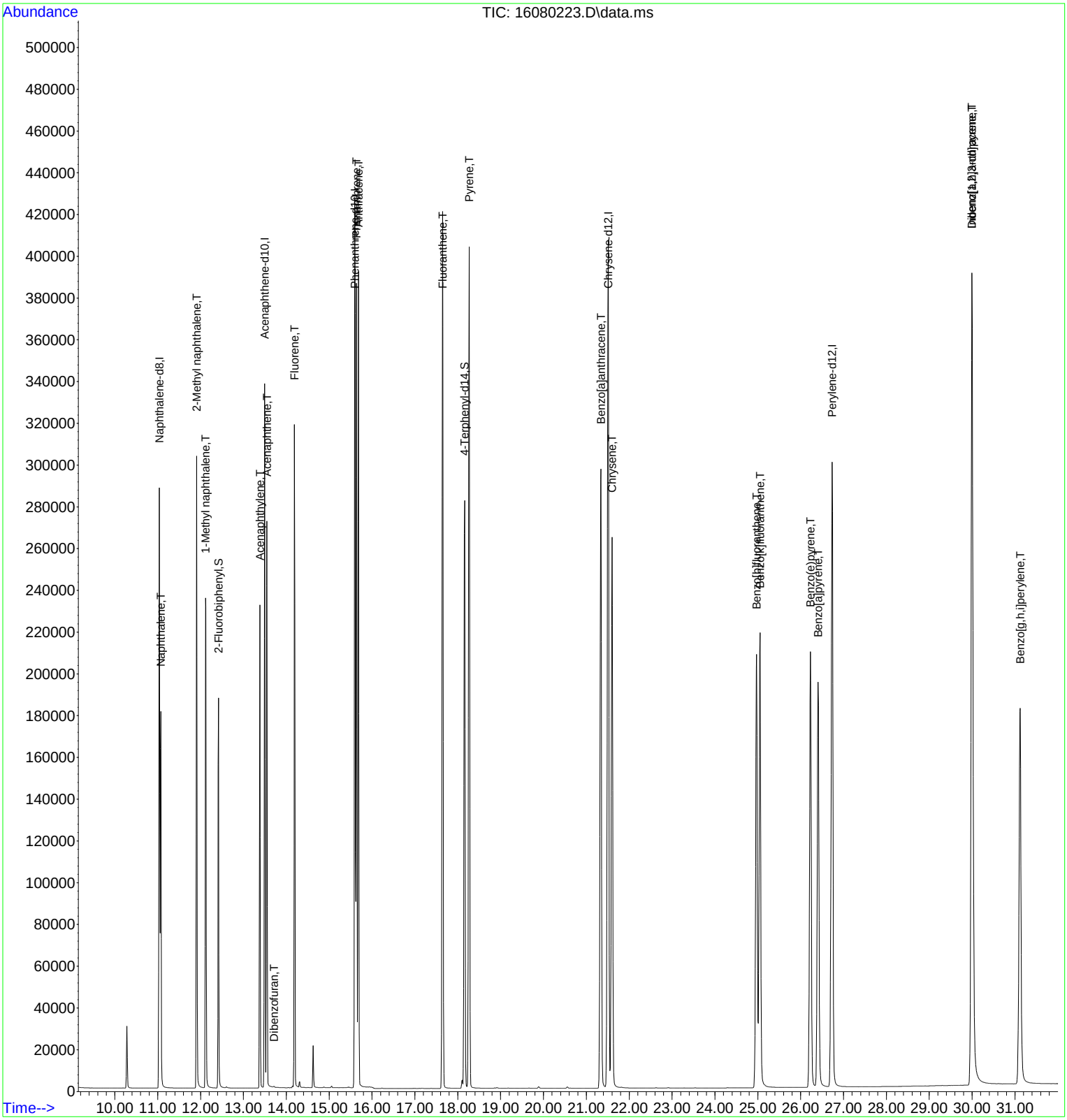
(#) = qualifier out of range (m) = manual integration (+) = signals summed

REVIEWED/APPROVED
By Sherri Herschmann at 10:31:43 AM, 8/10/2016

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160802\
Data File : 16080223.D
Acq On : 3 Aug 2016 12:41 am
Operator :
Sample : SSCV (2500 ppb)
Misc : ICV
ALS Vial : 13 Sample Multiplier: 1

Quant Time: Aug 03 10:24:44 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 10:10:50 2016
Response via : Initial Calibration



CAL ID: 682

Method 8270 PAH Calibration Curve Sheet

Instrument ID: GCMS #8 **Calibration File Name:** PAH160806.CAL

Target Concentration	Solvent Amount mL	Standard Preparation Stocks and Surrogate (µL/mL)	Final Volume mL
5 ppb	0.999	0.001 mL of 5000 ppb	1
10 ppb	0.998	0.002 mL of 5000 ppb	1
50 ppb	0.990	0.01 mL of 5000 ppb	1
100 ppb	0.980	0.02 mL of 5000 ppb	1
500 ppb	0.900	0.10 mL of 5000 ppb	1
1000 ppb	0.800	0.20 mL of 5000 ppb	1
2000 ppb	0.600	0.40 mL of 5000 ppb	1
5000 ppb	----	PAHCAL160805	10
SSCV 2500 ppb	0.500	0.50 mL of PAHSSCV160806-1	1
SSCV 2500 ppb	----	PAHSSCV160806-2	1

Standards Used for the Calibration Curve

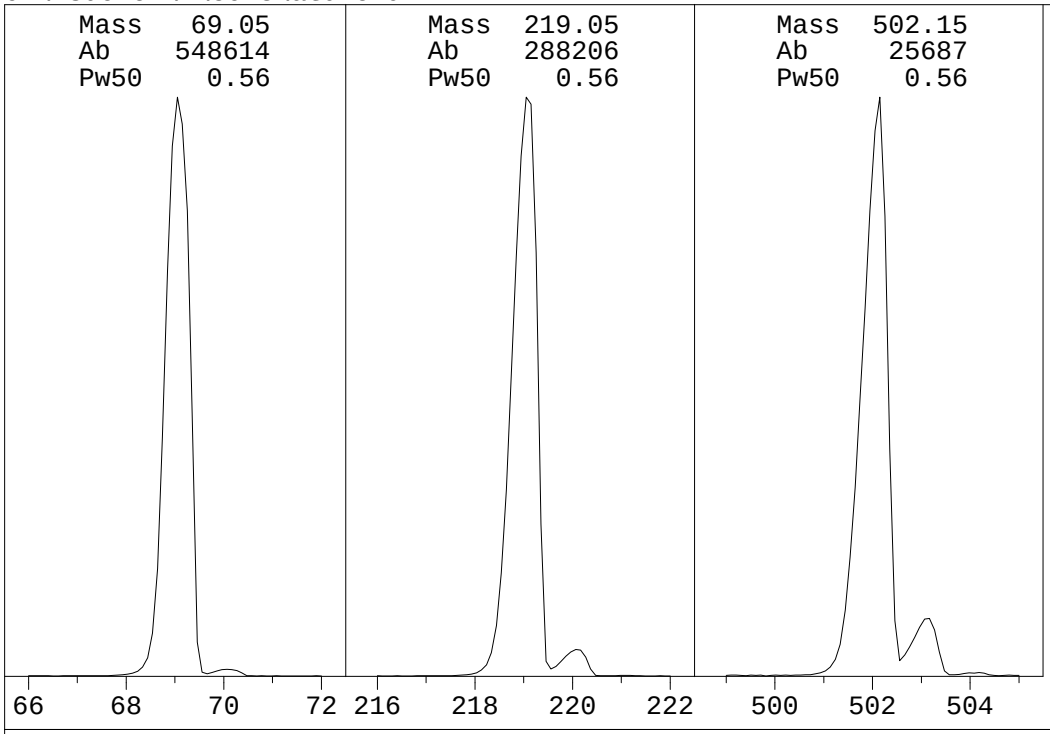
Primary Stock STDs	DHL Standard ID	Second Source (SS) Stock STDs	DHL Standard ID
5 PPM (5000 PPB) PAH CAL STD	**PAHCAL160805**	5PPM (5000PPB) PAH SSCV STD	**PAHSSCV160806-1**
		2.5PPM (2500PPB) PAH SSCV STD	**PAHSSCV160806-2**

Review Item	Acceptance Criteria	Yes	No	N/A	2nd Level Review
1. Are all standards within expiration dates?	Primary Stocks = 1 year Intermediate Standards = 6 months	X			X
2. Are all manual integrations listed on MI tracking form? **(DoD Projects only)**	Manual Integration Tracking Form			X	
3. Does the tune and resolution check meet criteria?	Benzo(b) / Benzo(k)phenanthrene Valley > 50% See Tune Eval Report	X			
4. Does the ICAL curve meet criteria? Use average CF only if %RSD < 15%	%RSD < 15% COD ≥ 0.990	X			
5. Has the low point been reprocessed under the new ICAL curve and meets criteria?	70-130% recovery	X			
6. Has the SSCV been analyzed and meets criteria?	80-120% recovery	X			

Analyst: Don Winston Date: 08/8/2016

Second-Level Review: Date: 08/10/2016

Sat Aug 06 12:54:50 2016 Instrument: GCMS #8
C:\msdchem\1\5973\atune.u

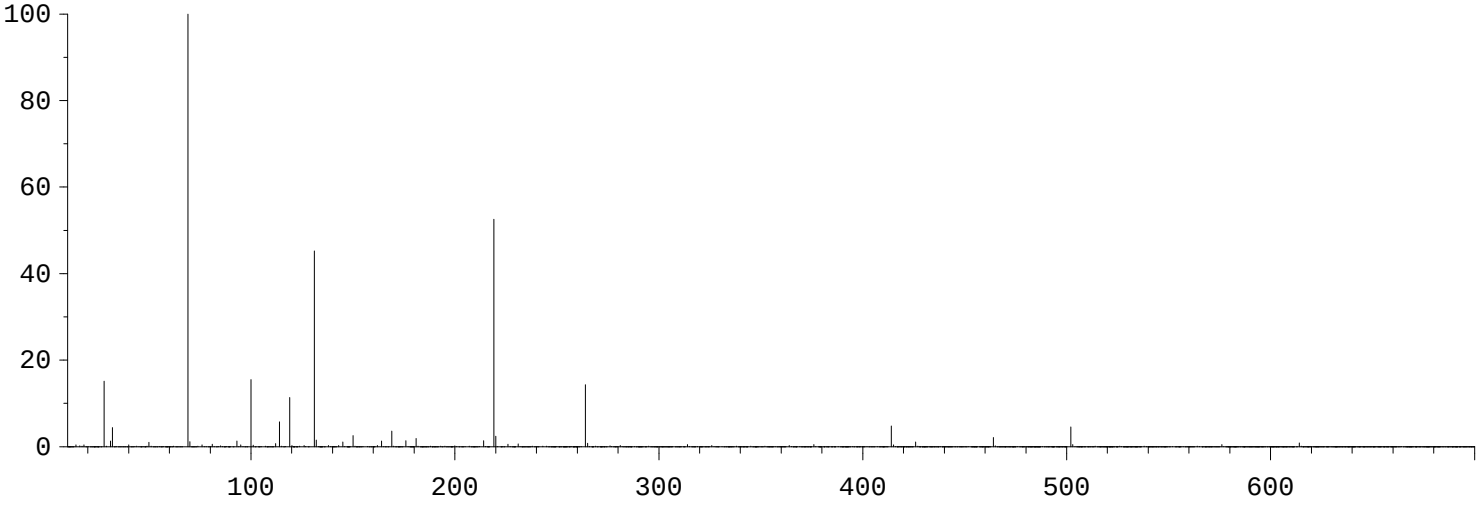


Ion Pol	POS	MassGain	45
		MassOffs	-11
Emission	34.6	AmuGain	2078
EIEnrgy	69.9	AmuOffs	135
Filament	1	Wid219	0.004
		DC Pol	NEG
Repeller	32.13		
IonFcus	101.5	HEDEnab	ON
EntLens	14.5	EMVolts	1271
EntOffs	22.09		
		Samples	8
PFTBA	OPEN	Averages	3
		Stepsize	0.10

Zones:

MS Source	230	Foreline	44
MS Quad	150		

Scan: 10.00 - 700.00 Samples: 8 Thresh: 0 Step: 0.10
1023 peaks Base: 69.05 Abundance: 494208



Mass	Abund	Rel Abund	Iso Mass	Iso Abund	Iso Ratio
69.05	494208	100.00	70.05	5768	1.17
219.05	259712	52.55	220.05	11813	4.55
502.05	22360	4.52	503.05	2309	10.33

Air/Water Check: H20~0.41% N2~15.16% O2~4.39% CO2~0.09% N2/H2O~3688.19%

Column Flow: Front: 0 Back: 0 ml/min. Interface Temp: 310

Ramp Criteria:
Ion Focus Maximum 125 volts using ion 219; EM Gain 5358
Repeller Maximum 38 volts using ion 502;

MassGain Values @Samples: 45@3 45@2 45@1 45@0 45@FS

TARGET MASS:	50	69	131	219	414	502	800
Amu Offset:	135.0	135.0	135.0	135.0	135.0	135.0	135.0
Entrance Lens Offset:	22.1	22.1	22.1	22.1	22.1	22.1	22.1

Response Factor Report GCMS #8

Method Path : C:\msdchem\1\METHODS\
Method File : PAH160806.M
Title : CLP BNA Calibration - Large Volume Injection
Last Update : Sun Aug 07 12:43:55 2016
Response Via : Initial Calibration

Calibration Files
1 =16080602.D 2 =16080603.D 3 =16080604.D 4 =16080605.D 5 =16080606.D 6 =16080607.D 7 =16080608.D
8 =16080609.D

		Compound	1	2	3	4	5	6	7	8	Avg	%RSD	Fit	RSD/CF	Constant	Linear	Quad
1)	I	Naphthalene-d8	----------ISTD----------														
2)	T	Naphthalene	1.106	1.004	0.959	0.923	0.919	0.917	0.895	0.909	0.954	7.38	A	0.0738	0.0000	0.9541	0.0000
3)	T	2-Methyl napht...	0.710	0.662	0.666	0.638	0.648	0.636	0.616	0.626	0.650	4.52	A	0.0452	0.0000	0.6504	0.0000
4)	T	1-Methyl napht...	0.678	0.626	0.603	0.589	0.588	0.581	0.555	0.565	0.598	6.55	A	0.0655	0.0000	0.5979	0.0000
5)	S	2-Fluorobiphenyl	1.119	0.977	0.918	0.872	0.846	0.826	0.780	0.781	0.890	12.82	A	0.1282	0.0000	0.8899	0.0000
6)	I	Acenaphthene-d10	----------ISTD----------														
7)	T	Acenaphthylene	1.974	1.905	1.823	1.781	1.810	1.851	1.802	1.859	1.851	3.40	A	0.0340	0.0000	1.8506	0.0000
8)	T	Acenaphthene	1.373	1.258	1.196	1.157	1.173	1.182	1.146	1.191	1.209	6.13	A	0.0613	0.0000	1.2094	0.0000
9)	T	Dibenzofuran	2.346	2.147	2.079	2.021	1.983	2.027	1.992	2.011	2.076	5.86	A	0.0586	0.0000	2.0758	0.0000
10)	T	Fluorene	1.920	1.861	1.747	1.690	1.727	1.784	1.813	1.818	1.795	4.15	A	0.0415	0.0000	1.7950	0.0000
11)	I	Phenanthrene-d10	----------ISTD----------														
12)	T	Phenanthrene	1.537	1.270	1.107	1.066	1.040	1.036	1.016	0.980	1.132	16.45	*Q	1.0000	0.0006	1.0426	-0.0508
13)	T	Anthracene	1.130	1.028	1.022	1.049	1.034	1.049	1.030	1.010	1.044	3.55	A	0.0355	0.0000	1.0441	0.0000
14)	T	Fluoranthene	1.171	1.085	1.076	1.066	1.080	1.100	1.074	1.033	1.086	3.64	A	0.0364	0.0000	1.0857	0.0000
15)	S	4-Terphenyl-d14	0.777	0.702	0.706	0.679	0.708	0.706	0.692	0.656	0.703	4.91	A	0.0491	0.0000	0.7032	0.0000
16)	T	Pyrene	1.167	1.081	1.085	1.064	1.092	1.097	1.074	1.024	1.086	3.68	A	0.0368	0.0000	1.0855	0.0000
17)	I	Chrysene-d12	----------ISTD----------														
18)	T	Benzo[a]anthra...	1.085	0.998	0.954	0.980	0.991	1.020	1.006	1.026	1.007	3.86	A	0.0386	0.0000	1.0074	0.0000
19)	T	Chrysene	1.033	0.929	0.923	0.934	0.947	0.968	0.941	0.952	0.954	3.69	A	0.0369	0.0000	0.9535	0.0000
20)	I	Perylene-d12	----------ISTD----------														
21)	T	Benzo[b]fluora...	1.078	0.948	0.939	0.981	1.003	1.063	1.035	1.067	1.014	5.37	A	0.0537	0.0000	1.0142	0.0000
22)	T	Benzo[k]fluora...	0.788	0.739	0.765	0.811	0.895	0.911	0.932	0.916	0.845	9.13	A	0.0913	0.0000	0.8448	0.0000
23)	cp	Benzo(j)fluora...	0.801	0.747	0.752	0.759	0.842	0.900	0.884	0.874	0.820	7.72	A	0.0772	0.0000	0.8197	0.0000
24)	T	Benzo(e)pyrene	1.111	1.037	0.978	0.932	0.991	1.004	0.994	1.028	1.009	5.17	A	0.0517	0.0000	1.0092	0.0000
25)	T	Benzo[a]pyrene	0.988	0.930	0.885	0.909	0.945	0.973	0.964	0.999	0.949	4.17	A	0.0417	0.0000	0.9491	0.0000
26)	T	Indeno[1,2,3-c...	1.234	1.125	1.112	1.141	1.179	1.196	1.194	1.237	1.177	4.01	A	0.0401	0.0000	1.1773	0.0000
27)	T	Dibenz[a,h]ant...	0.984	0.869	0.876	0.901	0.952	0.970	0.979	1.022	0.944	5.89	A	0.0589	0.0000	0.9440	0.0000
28)	T	Benzo[g,h,i]pe...	1.169	1.031	1.025	1.018	1.018	1.028	1.015	1.056	1.045	4.94	A	0.0494	0.0000	1.0451	0.0000

(#) = Out of Range

Sequence Name: C:\msdchem\1\sequence\160806.S
Comment:
Operator:
Data Path: C:\MSDCHEM\1\DATA\160806\
Instrument Name: GCMS #8
Instrument Control Pre-Seq Cmd:
Data Analysis Pre-Seq Cmd:

Instrument Control Post-Seq Cmd:
Data Analysis Post-Seq Cmd:

Method Sections To Run
(X) Full Method
( ) Reprocessing Only

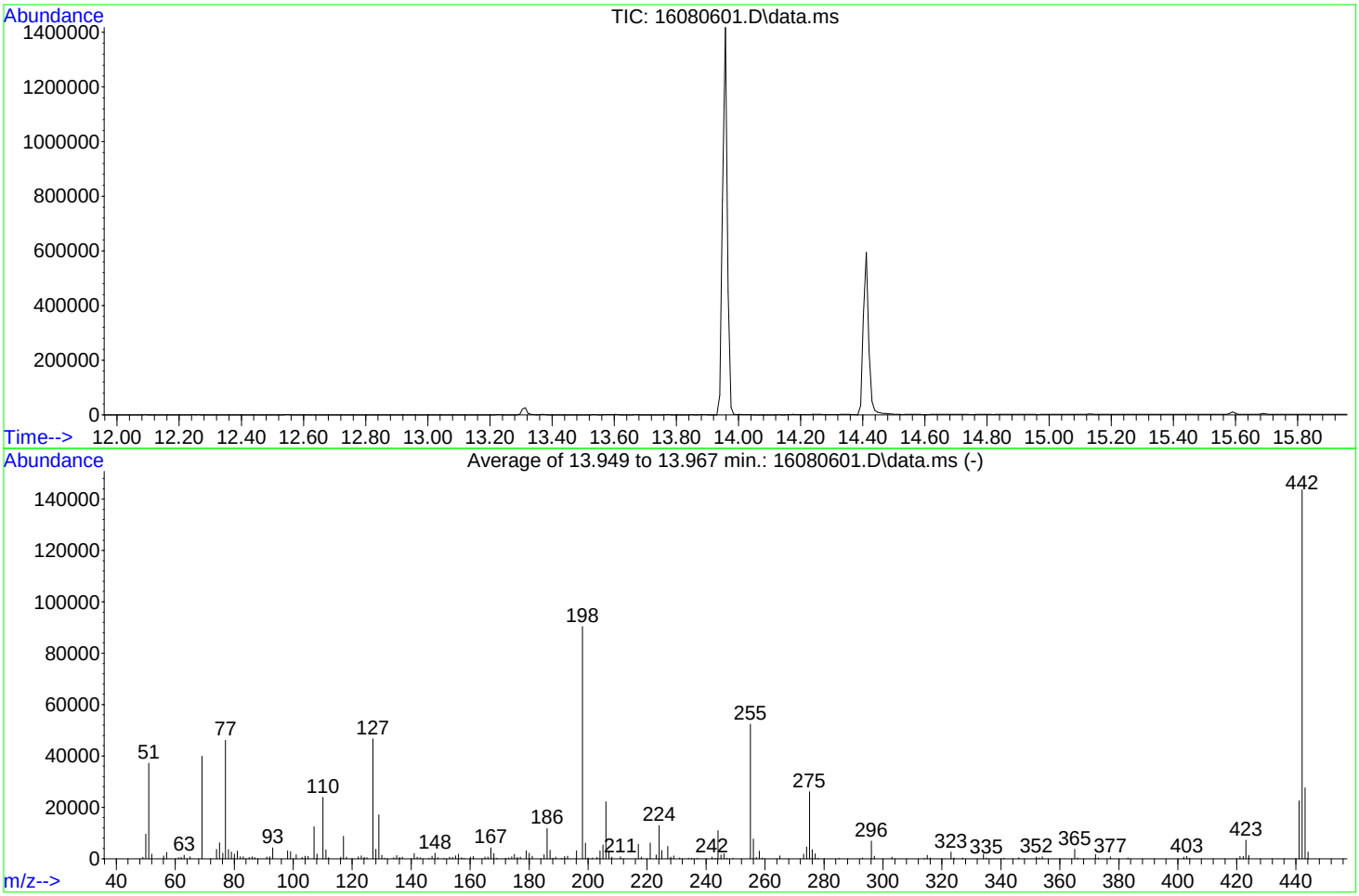
On A Barcode Mismatch
(X) Inject Anyway
( ) Don't Inject

Line			Sample Name/Misc Info		
1)	Sample	12	16080612	DFTPPPAH	DFTPP-160805
2)	Sample	13	16080613	PAH160802	ICV-160806
3)	Sample	14	16080614	PAH160802	LCS-76511
4)	Sample	15	16080615	PAH160802	MB-76511
5)	Sample	16	16080616	PAH160802	1607256-28A
6)	Sample	17	16080617	PAH160802	1607265-07A
7)	Sample	18	16080618	PAH160802	1607265-08A
8)	Sample	19	16080619	PAH160802	1607265-09A
9)	Sample	20	16080620	PAH160802	1607265-10A
10)	Sample	21	16080621	PAH160802	1607265-11A
11)	Sample	22	16080622	PAH160802	1607265-12A
12)	Sample	23	16080623	PAH160802	1607265-14A
13)	Sample	24	16080624	PAH160802	1607265-15A
14)	Sample	25	16080625	PAH160802	1607265-16A
15)	Sample	26	16080626	PAH160802	1607265-17A
16)	Sample	27	16080627	PAH160802	1607265-18A
17)	Sample	28	16080628	PAH160802	1607265-19A
18)	Sample	29	16080629	DFTPPPAH	DFTPP2-160806
19)	Sample	30	16080630	PAH160802	ICV2-160806
20)	Sample	31	16080631	PAH160802	SBLK
21)	Sample	32	16080632	PAH160802	SB-160808
22)	Sample	33	16080633	PAH160802	1607265-20A
23)	Sample	34	16080634	PAH160802	1607265-21A
24)	Sample	35	16080635	PAH160802	1607265-22A
25)	Sample	36	16080636	PAH160802	1607265-23A
26)	Sample	37	16080637	PAH160802	1607265-24A
27)	Sample	38	16080638	PAH160802	1607265-25A
28)	Sample	39	16080639	PAH160802	1607265-18AMS
29)	Sample	40	16080640	PAH160802	1607265-18AMSD
30)	Sample	41	16080641	PAH160802	CCV1-160806

Data Path : C:\msdchem\1\DATA\160806\
Data File : 16080601.D
Acq On : 6 Aug 2016 12:58 pm
Operator :
Sample : DFTPP-160806
Misc : TUNE
ALS Vial : 1 Sample Multiplier: 1

Integration File: RTEINT.P

Method : C:\msdchem\1\METHODS\DFTPPPAH.M
Title : CLP BNA Calibration - Large Volume Injection
Last Update : Thu Aug 27 07:24:43 2015



AutoFind: Scans 426, 427, 428; Background Corrected with Scan 422

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	10	80	41.1	37199	PASS
68	69	0.00	2	0.0	0	PASS
69	198	0.00	100	44.1	39855	PASS
70	69	0.00	2	0.0	0	PASS
127	198	10	80	51.6	46653	PASS
197	198	0.00	2	0.0	0	PASS
198	198	100	100	100.0	90418	PASS
199	198	5	9	6.8	6121	PASS
275	198	10	60	28.8	26052	PASS
365	198	1	200	4.0	3598	PASS
441	442	0.01	24	15.7	22565	PASS
442	198	50	400	158.9	143658	PASS
443	442	15	24	19.2	27558	PASS

REVIEWED/APPROVED
By Sherri Herschmann at 12:07:33 PM, 8/10/2016

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160806\
Data File : 16080602.D
Acq On : 6 Aug 2016 1:37 pm
Operator :
Sample : CAL1 (5 ppb)
Misc : CAL1
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Aug 08 07:59:57 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration

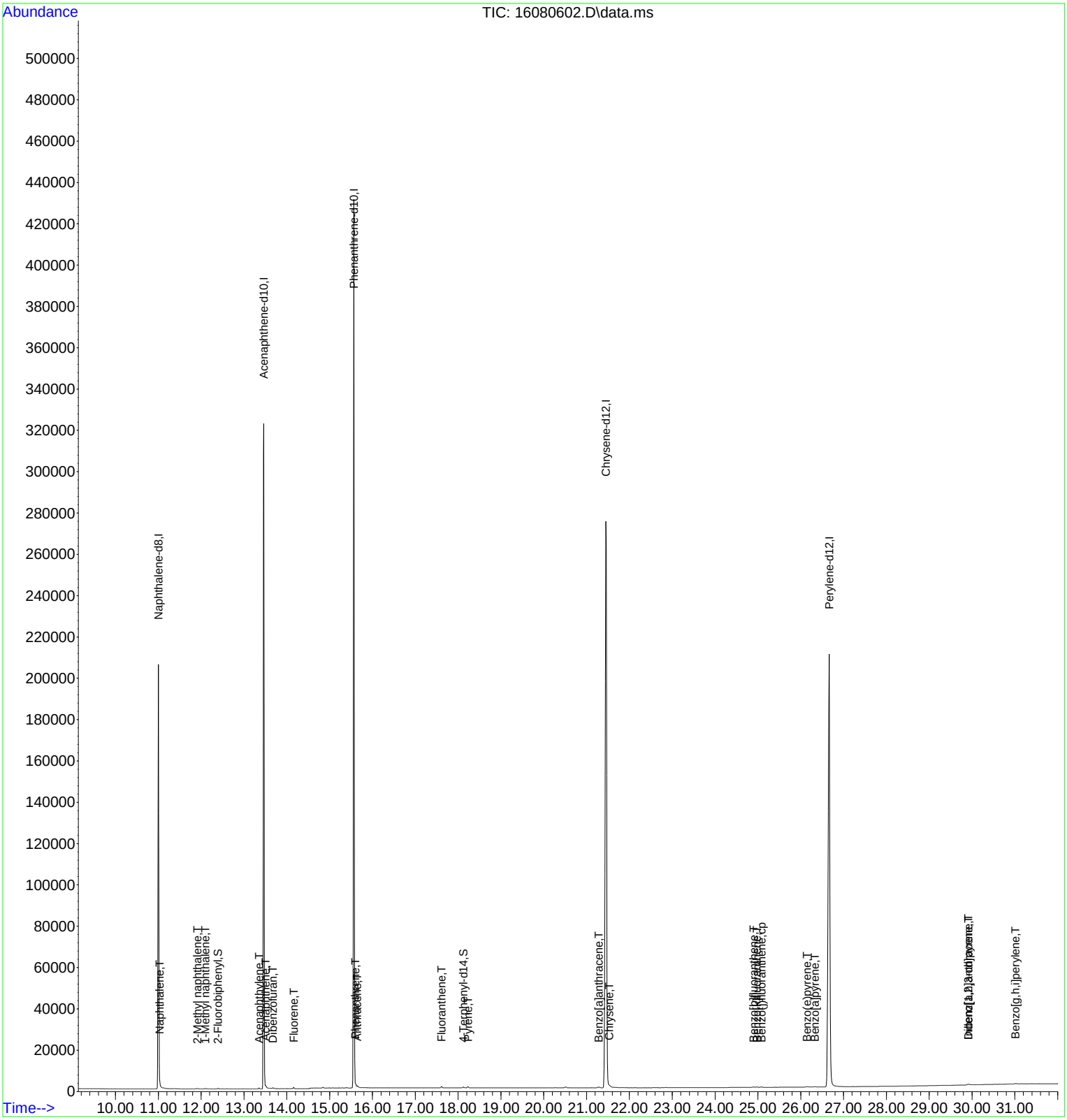
Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	11.001	136	252361	4000.00	ug/kg	95
6) Acenaphthene-d10	13.463	164	178320	4000.00	ug/kg	110
11) Phenanthrene-d10	15.567	188	500638	4000.00	ug/kg	97
17) Chrysene-d12	21.448	240	428962	4000.00	ug/kg	93
20) Perylene-d12	26.664	264	384584	4000.00	ug/kg	91
System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.392	172	353	6.29	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 0.16%#			
15) 4-Terphenyl-d14	18.122	244	486	5.52	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery = 0.14%#			
Target Compounds						Qvalue
2) Naphthalene	11.037	128	349	5.80	ug/kg	99
3) 2-Methyl naphthalene	11.909	142	224	5.46	ug/kg	98
4) 1-Methyl naphthalene	12.094	142	214	5.67	ug/kg	91
7) Acenaphthylene	13.349	152	440	5.33	ug/kg	99
8) Acenaphthene	13.512	153	306	5.68	ug/kg	98
9) Dibenzofuran	13.675	168	523	5.65	ug/kg	99
10) Fluorene	14.158	166	428	5.35	ug/kg	99
12) Phenanthrene	15.606	178	962	5.01	ug/kg	99
13) Anthracene	15.644	178	707	5.41	ug/kg	98
14) Fluoranthene	17.611	202	733	5.39	ug/kg	98
16) Pyrene	18.228	202	730	5.37	ug/kg	97
18) Benzo[a]anthracene	21.284	228	582	5.39	ug/kg	98
19) Chrysene	21.535	228	554	5.42	ug/kg	100
21) Benzo[b]fluoranthene	24.899	252	518	5.31	ug/kg	98
22) Benzo[k]fluoranthene	24.976	252	379	4.67	ug/kg	99
23) Benzo(j)fluoranthene	25.083	252	385	4.89	ug/kg	90
24) Benzo(e)pyrene	26.153	252	534	5.50	ug/kg	92
25) Benzo[a]pyrene	26.326	252	475	5.21	ug/kg	93
26) Indeno[1,2,3-cd]pyrene	29.922	276	593	5.24	ug/kg	99
27) Dibenz[a,h]anthracene	29.912	278	473	5.21	ug/kg	92
28) Benzo[g,h,i]perylene	31.021	276	562	5.59	ug/kg	97

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160806\
Data File : 16080602.D
Acq On : 6 Aug 2016 1:37 pm
Operator :
Sample : CAL1 (5 ppb)
Misc : CAL1
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Aug 08 07:59:57 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160806\
Data File : 16080603.D
Acq On : 6 Aug 2016 2:17 pm
Operator :
Sample : CAL2 (10 ppb)
Misc : CAL
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Aug 08 08:00:01 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration

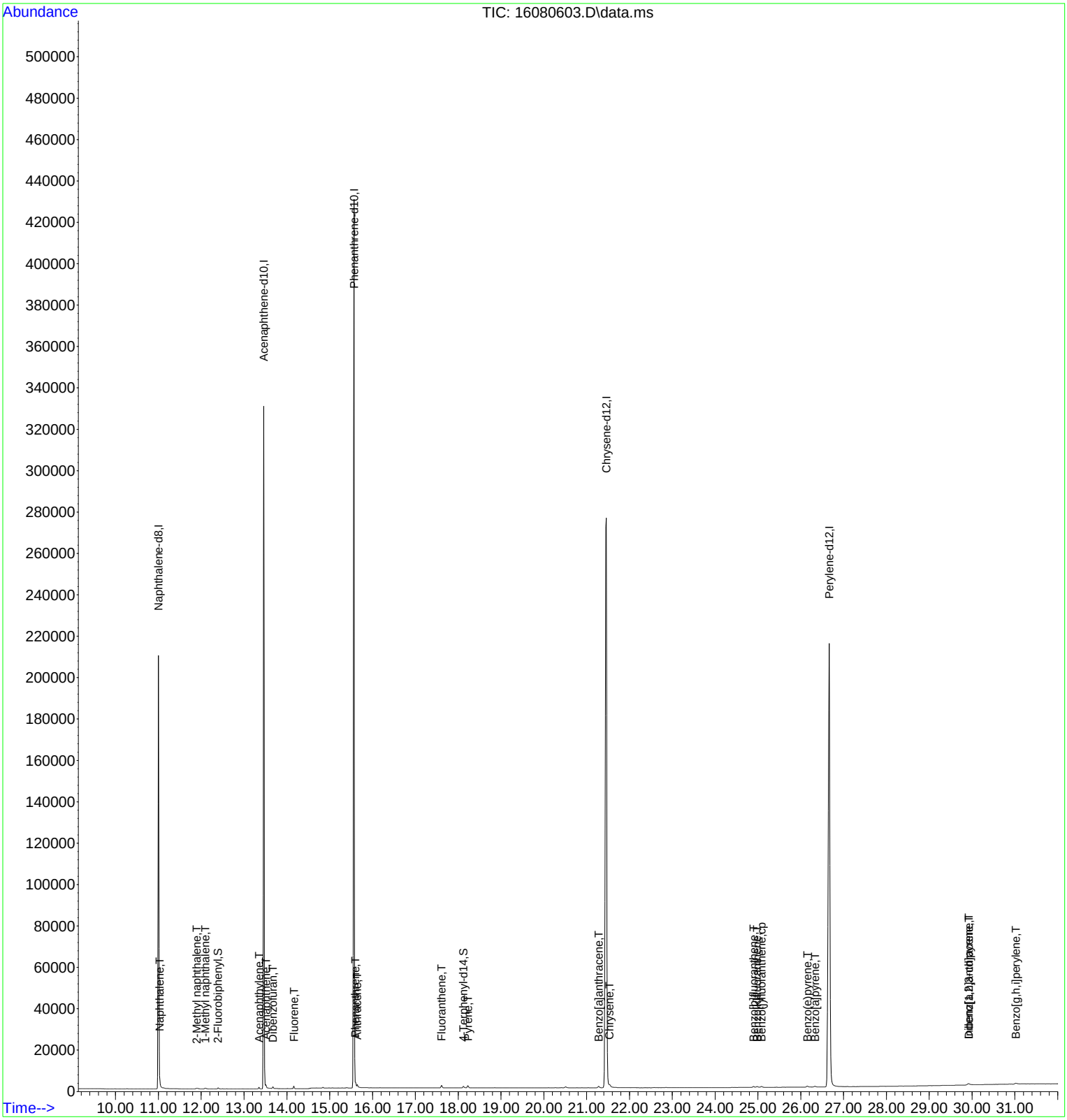
Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	11.001	136	260907	4000.00	ug/kg	99
6) Acenaphthene-d10	13.462	164	173258	4000.00	ug/kg	107
11) Phenanthrene-d10	15.567	188	498791	4000.00	ug/kg	97
17) Chrysene-d12	21.457	240	438240	4000.00	ug/kg	95
20) Perylene-d12	26.663	264	396275	4000.00	ug/kg	94
System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.398	172	637	10.97	ug/kg	0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery = 0.27%#			
15) 4-Terphenyl-d14	18.122	244	876	9.99	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery = 0.25%#			
Target Compounds						Qvalue
2) Naphthalene	11.036	128	655	10.52	ug/kg	99
3) 2-Methyl naphthalene	11.894	142	432	10.18	ug/kg	98
4) 1-Methyl naphthalene	12.093	142	408	10.46	ug/kg	97
7) Acenaphthylene	13.348	152	825	10.29	ug/kg	99
8) Acenaphthene	13.511	153	545	10.40	ug/kg	97
9) Dibenzofuran	13.675	168	930	10.34	ug/kg	100
10) Fluorene	14.164	166	806	10.37	ug/kg	100
12) Phenanthrene	15.605	178	1584	9.82	ug/kg	99
13) Anthracene	15.644	178	1282	9.85	ug/kg	99
14) Fluoranthene	17.611	202	1353	9.99	ug/kg	97
16) Pyrene	18.228	202	1348	9.96	ug/kg	96
18) Benzo[a]anthracene	21.284	228	1093	9.90	ug/kg	98
19) Chrysene	21.544	228	1018	9.74	ug/kg	100
21) Benzo[b]fluoranthene	24.899	252	939	9.35	ug/kg	96
22) Benzo[k]fluoranthene	24.976	252	732	8.75	ug/kg	98
23) Benzo(j)fluoranthene	25.082	252	740	9.11	ug/kg	99
24) Benzo(e)pyrene	26.152	252	1027	10.27	ug/kg	85
25) Benzo[a]pyrene	26.335	252	921	9.80	ug/kg	93
26) Indeno[1,2,3-cd]pyrene	29.922	276	1115	9.56	ug/kg	94
27) Dibenz[a,h]anthracene	29.912	278	861	9.21	ug/kg	98
28) Benzo[g,h,i]perylene	31.021	276	1021	9.86	ug/kg	95

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160806\
Data File : 16080603.D
Acq On : 6 Aug 2016 2:17 pm
Operator :
Sample : CAL2 (10 ppb)
Misc : CAL
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Aug 08 08:00:01 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160806\
Data File : 16080604.D
Acq On : 6 Aug 2016 2:57 pm
Operator :
Sample : CAL3 (50 ppb)
Misc : CAL
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Aug 08 08:00:05 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	11.001	136	266813	4000.00	ug/kg	101
6) Acenaphthene-d10	13.462	164	173590	4000.00	ug/kg	107
11) Phenanthrene-d10	15.567	188	486221	4000.00	ug/kg	94
17) Chrysene-d12	21.457	240	442610	4000.00	ug/kg	96
20) Perylene-d12	26.663	264	397777	4000.00	ug/kg	95

System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.391	172	3061	51.57	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 1.29%#			
15) 4-Terphenyl-d14	18.122	244	4291	50.20	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery = 1.26%#			

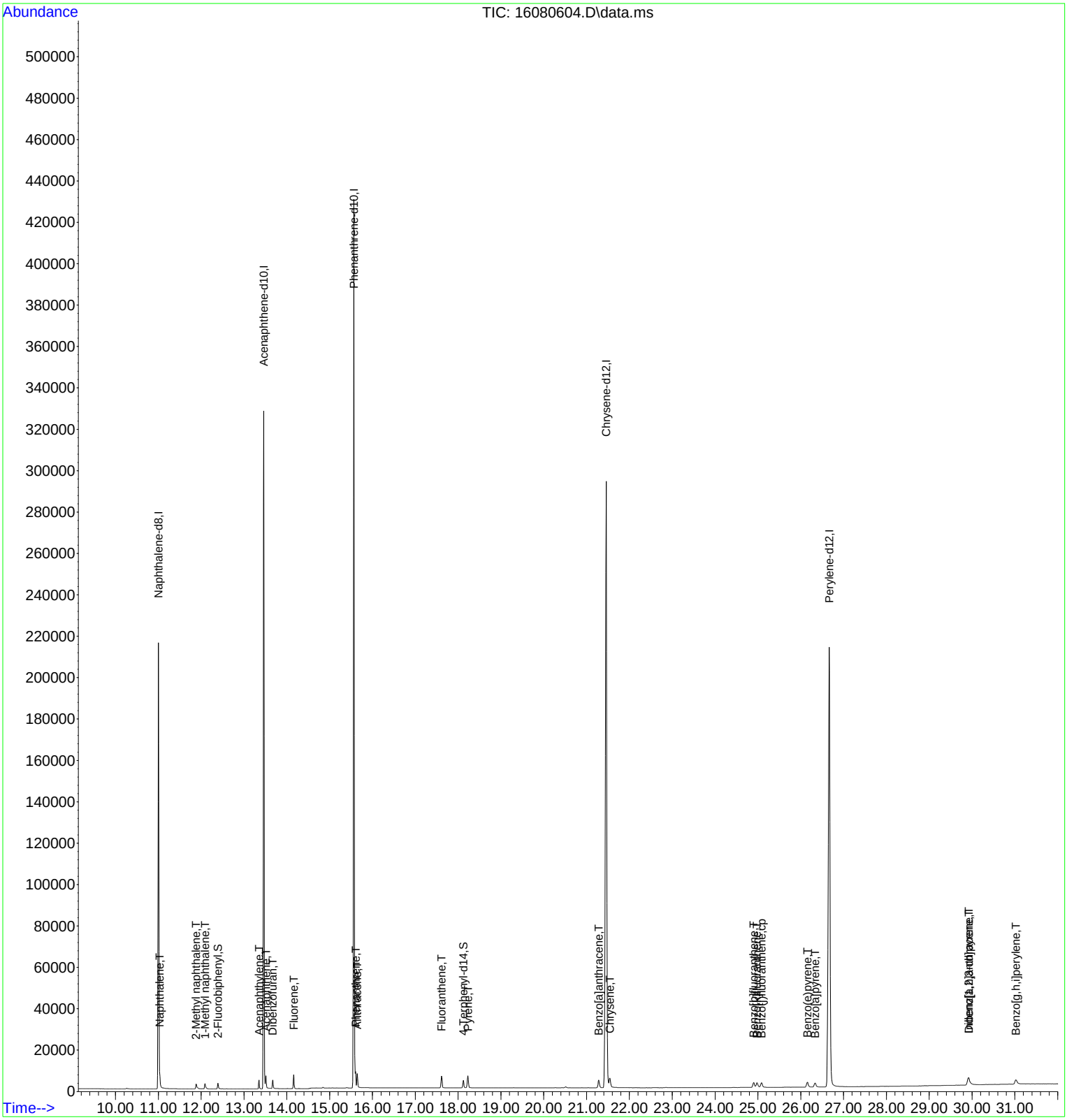
Target Compounds						Qvalue
2) Naphthalene	11.037	128	3197	50.23	ug/kg	100
3) 2-Methyl naphthalene	11.881	142	2222	51.22	ug/kg	99
4) 1-Methyl naphthalene	12.094	142	2011	50.42	ug/kg	98
7) Acenaphthylene	13.349	152	3956	49.26	ug/kg	99
8) Acenaphthene	13.512	153	2595	49.44	ug/kg	99
9) Dibenzofuran	13.675	168	4512	50.09	ug/kg	88
10) Fluorene	14.157	166	3791	48.67	ug/kg	98
12) Phenanthrene	15.605	178	6726	50.74	ug/kg	99
13) Anthracene	15.644	178	6211	48.94	ug/kg	99
14) Fluoranthene	17.611	202	6538	49.54	ug/kg	97
16) Pyrene	18.228	202	6597	50.00	ug/kg	98
18) Benzo[a]anthracene	21.284	228	5278	47.35	ug/kg	99
19) Chrysene	21.544	228	5108	48.41	ug/kg	100
21) Benzo[b]fluoranthene	24.899	252	4670	46.30	ug/kg	100
22) Benzo[k]fluoranthene	24.976	252	3804	45.28	ug/kg	99
23) Benzo(j)fluoranthene	25.082	252	3737	45.84	ug/kg	99
24) Benzo(e)pyrene	26.152	252	4861	48.44	ug/kg	98
25) Benzo[a]pyrene	26.335	252	4399	46.61	ug/kg	99
26) Indeno[1,2,3-cd]pyrene	29.922	276	5529	47.23	ug/kg	100
27) Dibenz[a,h]anthracene	29.912	278	4354	46.38	ug/kg	98
28) Benzo[g,h,i]perylene	31.021	276	5097	49.04	ug/kg	96

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160806\
Data File : 16080604.D
Acq On : 6 Aug 2016 2:57 pm
Operator :
Sample : CAL3 (50 ppb)
Misc : CAL
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Aug 08 08:00:05 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160806\
Data File : 16080605.D
Acq On : 6 Aug 2016 3:37 pm
Operator :
Sample : CAL4 (100 ppb)
Misc : CAL
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Aug 08 08:00:08 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration

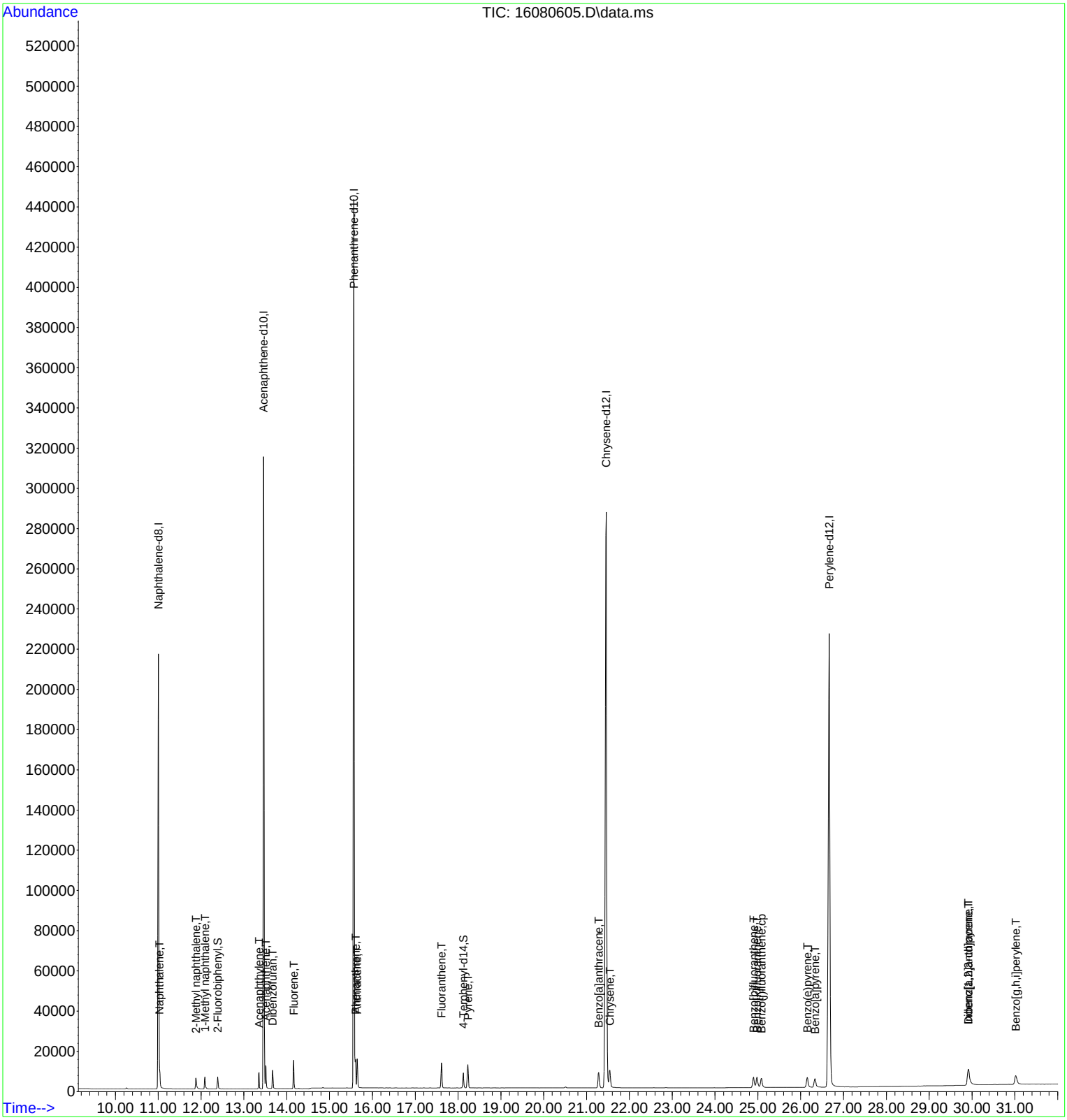
Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	11.004	136	274991	4000.00	ug/kg	104
6) Acenaphthene-d10	13.458	164	178176	4000.00	ug/kg	110
11) Phenanthrene-d10	15.568	188	502679	4000.00	ug/kg	98
17) Chrysene-d12	21.458	240	453820	4000.00	ug/kg	98
20) Perylene-d12	26.664	264	411967	4000.00	ug/kg	98
System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.387	172	5998	98.05	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 2.45%#			
15) 4-Terphenyl-d14	18.122	244	8527	96.49	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery = 2.41%#			
Target Compounds						Qvalue
2) Naphthalene	11.032	128	6346	96.74	ug/kg	99
3) 2-Methyl naphthalene	11.883	142	4384	98.05	ug/kg	97
4) 1-Methyl naphthalene	12.089	142	4046	98.43	ug/kg	100
7) Acenaphthylene	13.351	152	7933	96.24	ug/kg	99
8) Acenaphthene	13.507	153	5152	95.63	ug/kg	98
9) Dibenzofuran	13.671	168	9001	97.35	ug/kg	99
10) Fluorene	14.160	166	7530	94.18	ug/kg	99
12) Phenanthrene	15.606	178	13400	100.04	ug/kg	100
13) Anthracene	15.645	178	13186	100.49	ug/kg	99
14) Fluoranthene	17.611	202	13402	98.22	ug/kg	96
16) Pyrene	18.228	202	13367	97.99	ug/kg	97
18) Benzo[a]anthracene	21.285	228	11119	97.28	ug/kg	99
19) Chrysene	21.545	228	10594	97.93	ug/kg	99
21) Benzo[b]fluoranthene	24.900	252	10106	96.75	ug/kg	100
22) Benzo[k]fluoranthene	24.977	252	8356	96.03	ug/kg	99
23) Benzo(j)fluoranthene	25.083	252	7814	92.56	ug/kg	99
24) Benzo(e)pyrene	26.153	252	9595	92.31	ug/kg	97
25) Benzo[a]pyrene	26.336	252	9362	95.78	ug/kg	99
26) Indeno[1,2,3-cd]pyrene	29.922	276	11756	96.95	ug/kg	97
27) Dibenz[a,h]anthracene	29.913	278	9284	95.49	ug/kg	100
28) Benzo[g,h,i]perylene	31.021	276	10489	97.45	ug/kg	97

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160806\
Data File : 16080605.D
Acq On : 6 Aug 2016 3:37 pm
Operator :
Sample : CAL4 (100 ppb)
Misc : CAL
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Aug 08 08:00:08 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160806\
Data File : 16080606.D
Acq On : 6 Aug 2016 4:16 pm
Operator :
Sample : CAL5 (500 ppb)
Misc : CAL
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Aug 08 08:00:11 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	11.000	136	278244	4000.00	ug/kg	105
6) Acenaphthene-d10	13.461	164	175636	4000.00	ug/kg	108
11) Phenanthrene-d10	15.568	188	507329	4000.00	ug/kg	99
17) Chrysene-d12	21.458	240	462988	4000.00	ug/kg	100
20) Perylene-d12	26.664	264	416937	4000.00	ug/kg	99

System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.383	172	29434	475.52	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 11.89%#			
15) 4-Terphenyl-d14	18.123	244	44894	503.34	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery = 12.58%#			

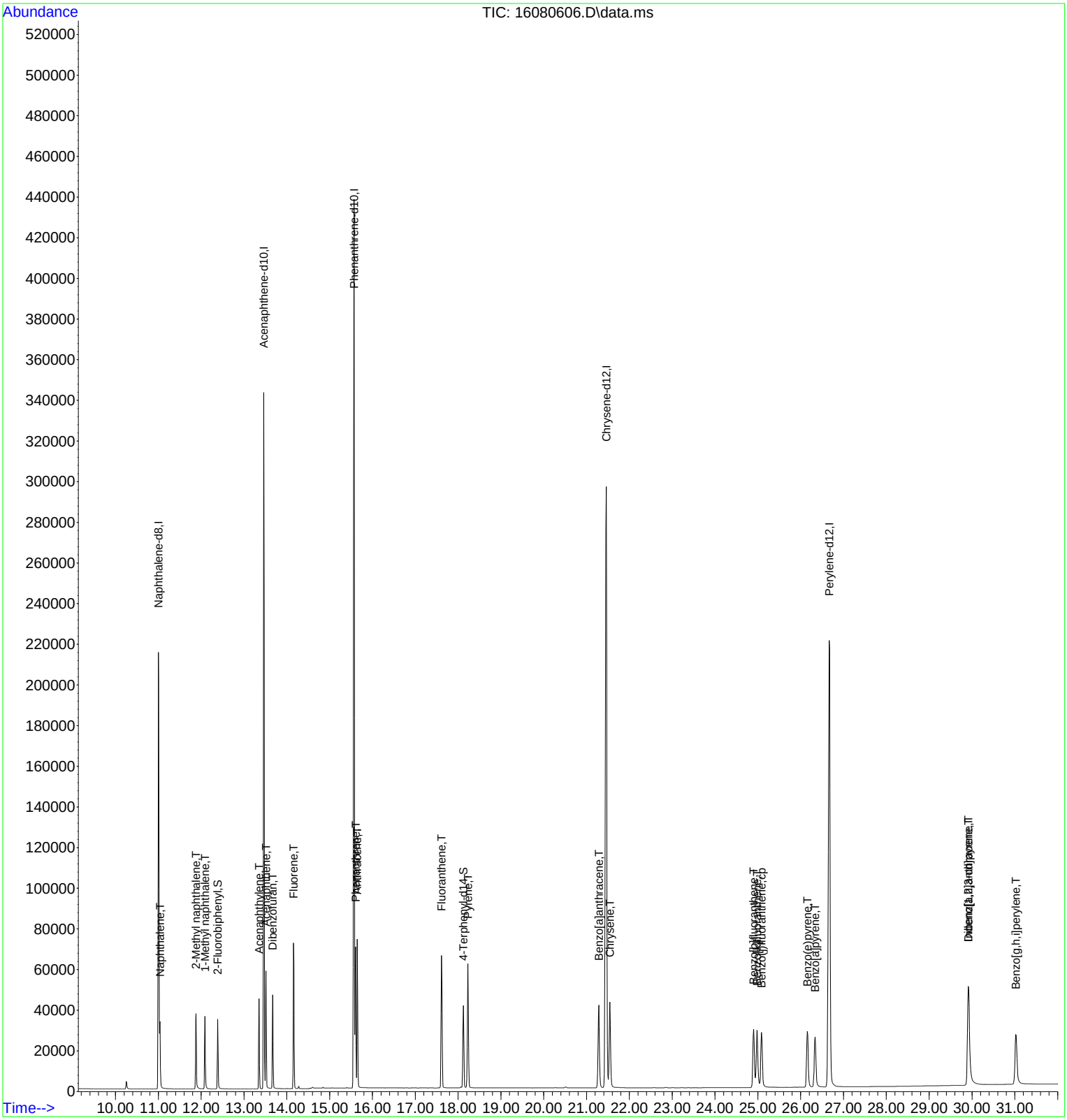
Target Compounds						Qvalue
2) Naphthalene	11.036	128	31957	481.49	ug/kg	100
3) 2-Methyl naphthalene	11.880	142	22525	497.88	ug/kg	97
4) 1-Methyl naphthalene	12.085	142	20452	491.73	ug/kg	97
7) Acenaphthylene	13.348	152	39741	489.08	ug/kg	100
8) Acenaphthene	13.511	153	25750	484.90	ug/kg	98
9) Dibenzofuran	13.667	168	43530	477.58	ug/kg	91
10) Fluorene	14.156	166	37919	481.10	ug/kg	98
12) Phenanthrene	15.606	178	65953	499.45	ug/kg	99
13) Anthracene	15.645	178	65597	495.35	ug/kg	99
14) Fluoranthene	17.612	202	68462	497.17	ug/kg	97
16) Pyrene	18.229	202	69262	503.07	ug/kg	97
18) Benzo[a]anthracene	21.285	228	57325	491.61	ug/kg	99
19) Chrysene	21.545	228	54790	496.44	ug/kg	99
21) Benzo[b]fluoranthene	24.900	252	52298	494.72	ug/kg	100
22) Benzo[k]fluoranthene	24.977	252	46642	529.66	ug/kg	99
23) Benzo(j)fluoranthene	25.083	252	43864	513.38	ug/kg	99
24) Benzo(e)pyrene	26.153	252	51640	490.90	ug/kg	100
25) Benzo[a]pyrene	26.336	252	49258	497.93	ug/kg	99
26) Indeno[1,2,3-cd]pyrene	29.923	276	61440	500.66	ug/kg	98
27) Dibenz[a,h]anthracene	29.913	278	49607	504.13	ug/kg	99
28) Benzo[g,h,i]perylene	31.031	276	53077	487.22	ug/kg	99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160806\
Data File : 16080606.D
Acq On : 6 Aug 2016 4:16 pm
Operator :
Sample : CAL5 (500 ppb)
Misc : CAL
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Aug 08 08:00:11 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160806\
Data File : 16080607.D
Acq On : 6 Aug 2016 4:56 pm
Operator :
Sample : CAL6 (1000 ppb)
Misc : CAL
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Aug 08 08:00:14 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	11.000	136	267822	4000.00	ug/kg	101
6) Acenaphthene-d10	13.461	164	166716	4000.00	ug/kg	103
11) Phenanthrene-d10	15.568	188	501021	4000.00	ug/kg	97
17) Chrysene-d12	21.458	240	446752	4000.00	ug/kg	97
20) Perylene-d12	26.674	264	404758	4000.00	ug/kg	96

System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.383	172	55310	928.32	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 23.21%#			
15) 4-Terphenyl-d14	18.123	244	88400	1003.60	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery = 25.09%#			

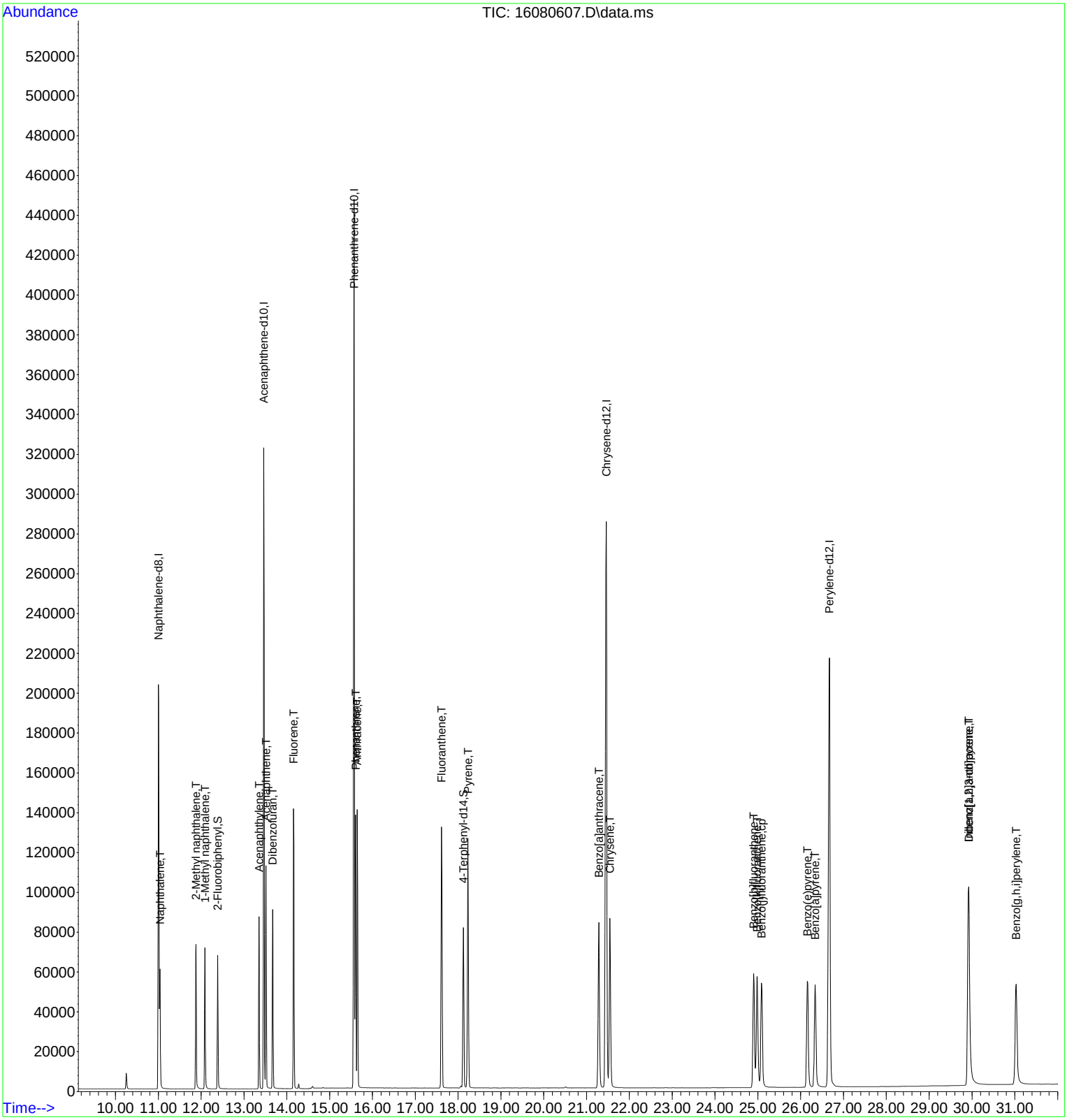
Target Compounds						Qvalue
2) Naphthalene	11.035	128	61427	961.52	ug/kg	99
3) 2-Methyl naphthalene	11.879	142	42615	978.59	ug/kg	97
4) 1-Methyl naphthalene	12.085	142	38878	971.12	ug/kg	97
7) Acenaphthylene	13.348	152	77127	999.95	ug/kg	100
8) Acenaphthene	13.511	153	49267	977.39	ug/kg	98
9) Dibenzofuran	13.674	168	84471	976.35	ug/kg	83
10) Fluorene	14.156	166	74335	993.59	ug/kg	98
12) Phenanthrene	15.606	178	129759	1003.58	ug/kg	100
13) Anthracene	15.645	178	131450	1005.12	ug/kg	100
14) Fluoranthene	17.612	202	137770	1013.07	ug/kg	97
16) Pyrene	18.229	202	137427	1010.75	ug/kg	99
18) Benzo[a]anthracene	21.285	228	113900	1012.29	ug/kg	100
19) Chrysene	21.545	228	108156	1015.59	ug/kg	99
21) Benzo[b]fluoranthene	24.900	252	107527	1047.78	ug/kg	99
22) Benzo[k]fluoranthene	24.987	252	92227	1078.84	ug/kg	98
23) Benzo(j)fluoranthene	25.083	252	91088	1098.15	ug/kg	99
24) Benzo(e)pyrene	26.163	252	101610	994.98	ug/kg	100
25) Benzo[a]pyrene	26.336	252	98457	1025.22	ug/kg	98
26) Indeno[1,2,3-cd]pyrene	29.932	276	121009	1015.75	ug/kg	92
27) Dibenz[a,h]anthracene	29.913	278	98173	1027.69	ug/kg	98
28) Benzo[g,h,i]perylene	31.031	276	104054	983.90	ug/kg	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160806\
Data File : 16080607.D
Acq On : 6 Aug 2016 4:56 pm
Operator :
Sample : CAL6 (1000 ppb)
Misc : CAL
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Aug 08 08:00:14 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160806\
Data File : 16080608.D
Acq On : 6 Aug 2016 5:36 pm
Operator :
Sample : CAL7 (2000 ppb)
Misc : CAL
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Aug 08 08:00:17 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration

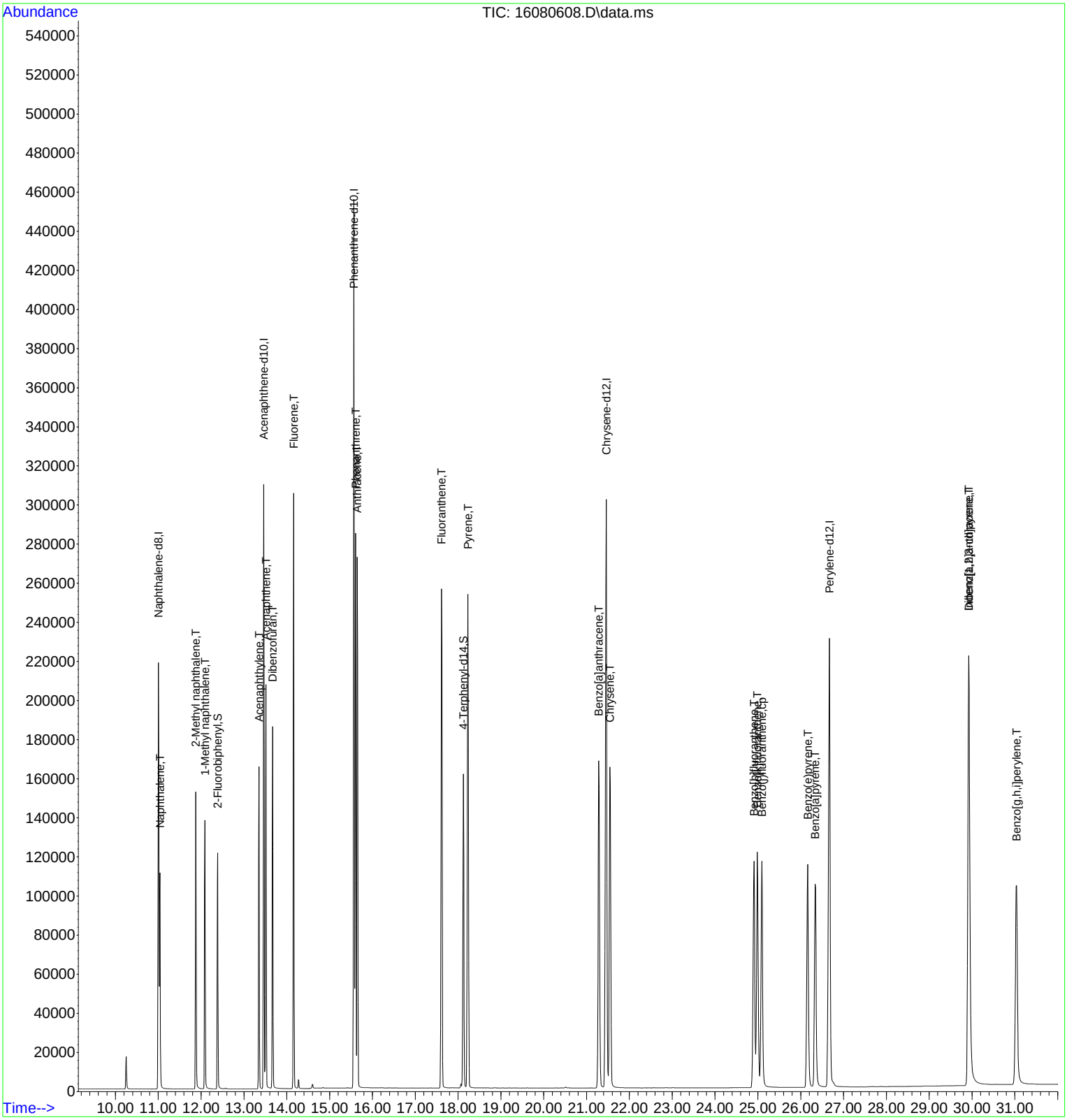
Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	11.003	136	264758	4000.00	ug/kg	100
6) Acenaphthene-d10	13.464	164	162191	4000.00	ug/kg	100
11) Phenanthrene-d10	15.568	188	514937	4000.00	ug/kg	100
17) Chrysene-d12	21.458	240	462813	4000.00	ug/kg	100
20) Perylene-d12	26.674	264	420332	4000.00	ug/kg	100
System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.386	172	103225	1752.58	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 43.81%			
15) 4-Terphenyl-d14	18.123	244	178181	1968.20	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery = 49.20%#			
Target Compounds						Qvalue
2) Naphthalene	11.038	128	118524	1876.73	ug/kg	100
3) 2-Methyl naphthalene	11.875	142	81602	1895.55	ug/kg	100
4) 1-Methyl naphthalene	12.088	142	73437	1855.59	ug/kg	100
7) Acenaphthylene	13.350	152	146166	1947.92	ug/kg	100
8) Acenaphthene	13.513	153	92949	1895.42	ug/kg	100
9) Dibenzofuran	13.669	168	161555	1919.41	ug/kg	100
10) Fluorene	14.159	166	147030	2020.08	ug/kg	100
12) Phenanthrene	15.607	178	261552	1994.90	ug/kg	100
13) Anthracene	15.645	178	265308	1973.84	ug/kg	100
14) Fluoranthene	17.612	202	276623	1979.14	ug/kg	100
16) Pyrene	18.229	202	276518	1978.77	ug/kg	100
18) Benzo[a]anthracene	21.285	228	232801	1997.23	ug/kg	100
19) Chrysene	21.545	228	217842	1974.57	ug/kg	100
21) Benzo[b]fluoranthene	24.910	252	217452	2040.42	ug/kg	100
22) Benzo[k]fluoranthene	24.987	252	195921	2206.89	ug/kg	100
23) Benzo(j)fluoranthene	25.093	252	185794	2156.93	ug/kg	100
24) Benzo(e)pyrene	26.163	252	208877	1969.57	ug/kg	100
25) Benzo[a]pyrene	26.346	252	202589	2031.37	ug/kg	100
26) Indeno[1,2,3-cd]pyrene	29.932	276	250927	2028.25	ug/kg	100
27) Dibenz[a,h]anthracene	29.923	278	205669	2073.21	ug/kg	100
28) Benzo[g,h,i]perylene	31.041	276	213396	1943.04	ug/kg	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160806\
Data File : 16080608.D
Acq On : 6 Aug 2016 5:36 pm
Operator :
Sample : CAL7 (2000 ppb)
Misc : CAL
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Aug 08 08:00:17 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160806\
Data File : 16080609.D
Acq On : 6 Aug 2016 6:15 pm
Operator :
Sample : CAL8 (5000 ppb)
Misc : CAL
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Aug 08 08:00:21 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration

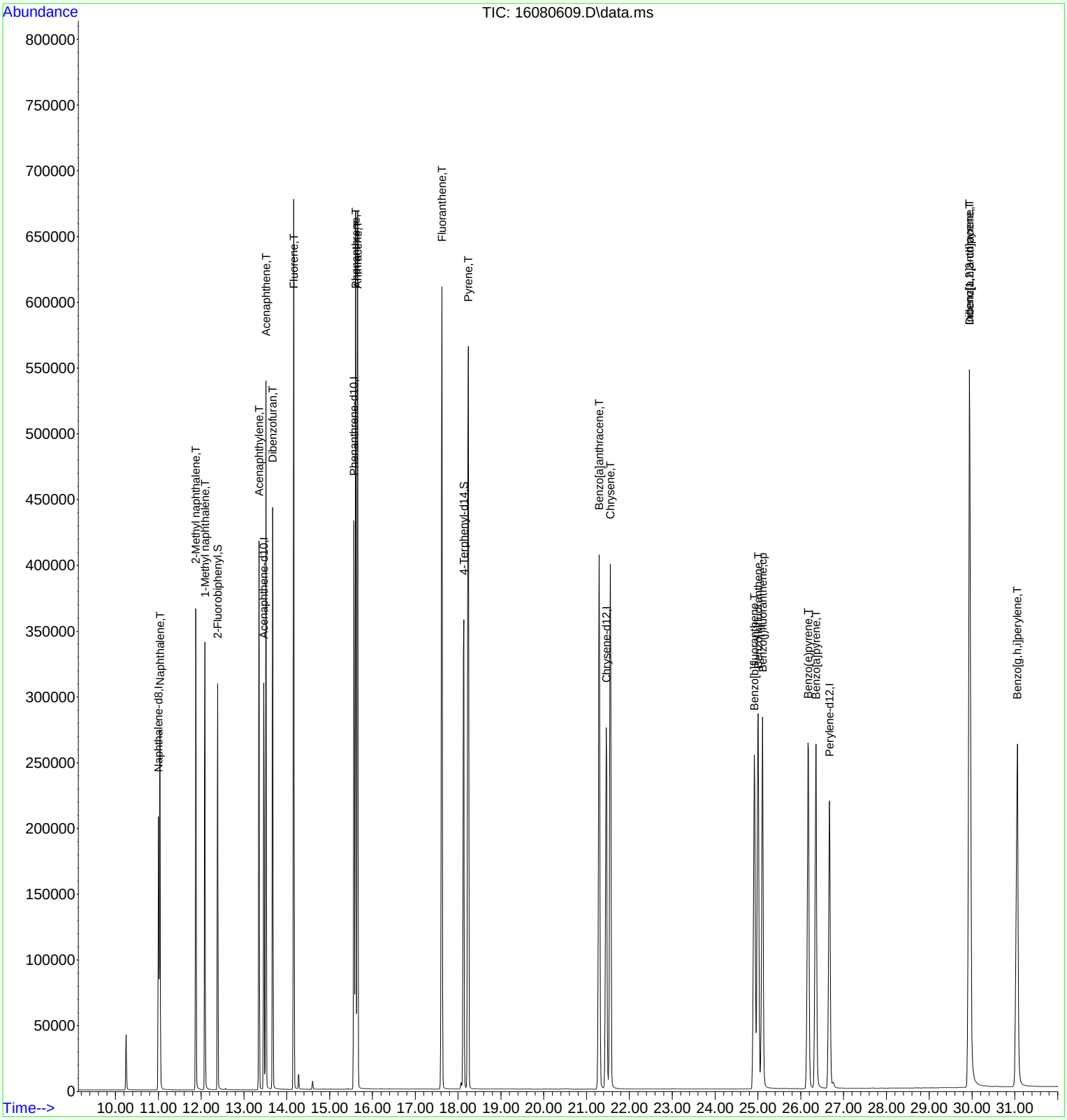
Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	11.002	136	252241	4000.00	ug/kg	95
6) Acenaphthene-d10	13.463	164	159272	4000.00	ug/kg	98
11) Phenanthrene-d10	15.567	188	499657	4000.00	ug/kg	97
17) Chrysene-d12	21.458	240	432494	4000.00	ug/kg	93
20) Perylene-d12	26.673	264	396956	4000.00	ug/kg	94
System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.385	172	246192	4387.33	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 109.68%			
15) 4-Terphenyl-d14	18.132	244	410002	4667.42	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery = 116.69%			
Target Compounds						Qvalue
2) Naphthalene	11.037	128	286734	4765.49	ug/kg	99
3) 2-Methyl naphthalene	11.874	142	197473	4814.77	ug/kg	99
4) 1-Methyl naphthalene	12.087	142	177995	4720.73	ug/kg	99
7) Acenaphthylene	13.349	152	370090	5022.48	ug/kg	99
8) Acenaphthene	13.512	153	237031	4922.13	ug/kg	99
9) Dibenzofuran	13.668	168	400435	4844.69	ug/kg	90
10) Fluorene	14.158	166	361931	5063.80	ug/kg	99
12) Phenanthrene	15.606	178	611969	5001.47	ug/kg	98
13) Anthracene	15.654	178	630528	4834.45	ug/kg	99
14) Fluoranthene	17.621	202	645421	4758.97	ug/kg	97
16) Pyrene	18.238	202	639631	4717.20	ug/kg	100
18) Benzo[a]anthracene	21.294	228	554663	5092.10	ug/kg	99
19) Chrysene	21.554	228	514776	4993.15	ug/kg	99
21) Benzo[b]fluoranthene	24.919	252	529342	5259.47	ug/kg	98
22) Benzo[k]fluoranthene	25.006	252	454699	5423.43	ug/kg	99
23) Benzo(j)fluoranthene	25.112	252	433556	5329.67	ug/kg	99
24) Benzo(e)pyrene	26.182	252	510171	5093.87	ug/kg	99
25) Benzo[a]pyrene	26.355	252	495676	5262.85	ug/kg	97
26) Indeno[1,2,3-cd]pyrene	29.951	276	613990	5255.15	ug/kg	97
27) Dibenz[a,h]anthracene	29.941	278	506923	5410.87	ug/kg	98
28) Benzo[g,h,i]perylene	31.060	276	523877	5050.98	ug/kg	97

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160806\
Data File : 16080609.D
Acq On : 6 Aug 2016 6:15 pm
Operator :
Sample : CAL8 (5000 ppb)
Misc : CAL
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Aug 08 08:00:21 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160806\
Data File : 16080610.D
Acq On : 6 Aug 2016 6:55 pm
Operator :
Sample : SSCV (2500 ppb)
Misc : ICV
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Aug 08 08:00:24 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration

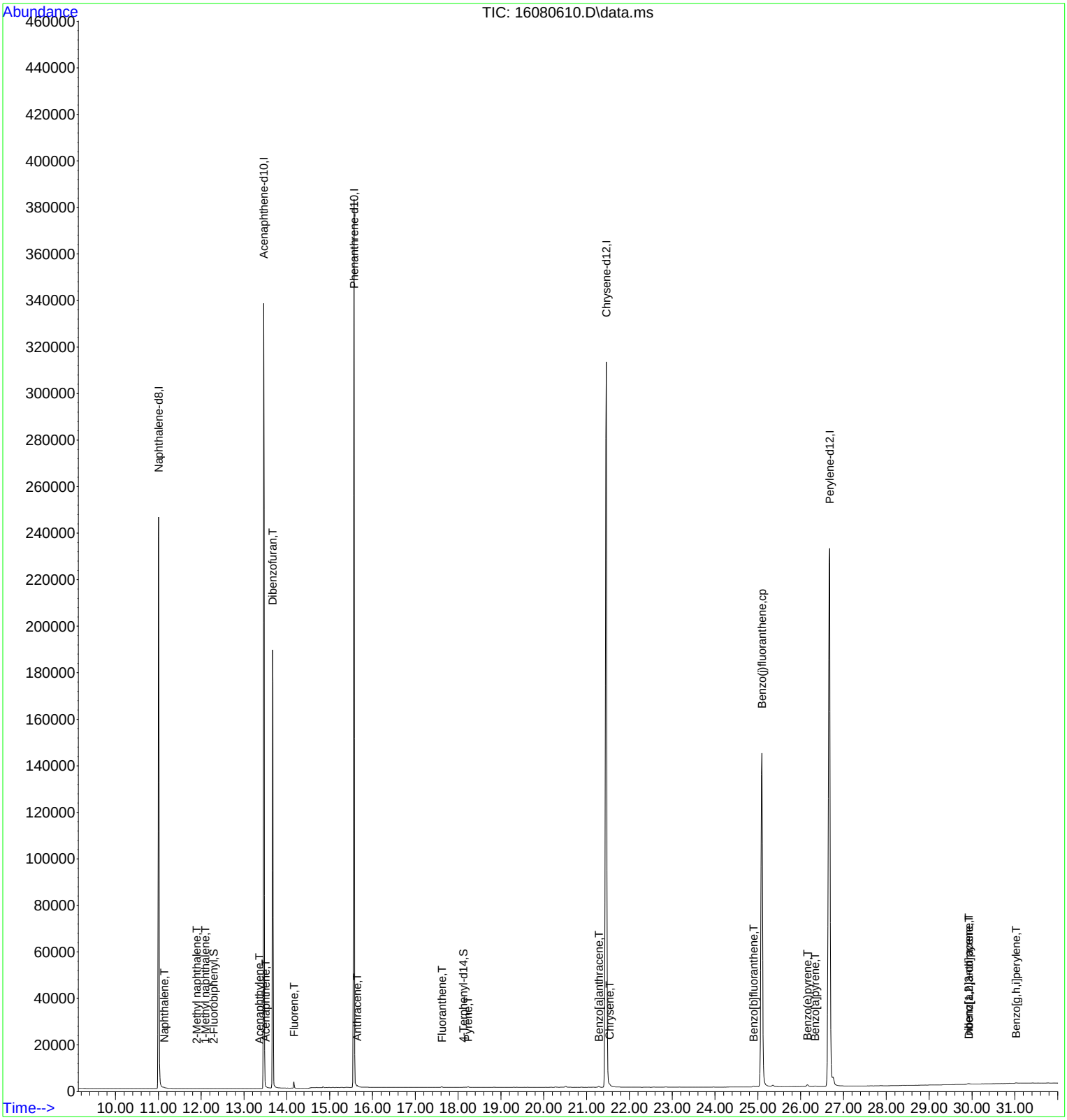
Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	11.008	136	322112	4000.00	ug/kg	122
6) Acenaphthene-d10	13.462	164	171075	4000.00	ug/kg	105
11) Phenanthrene-d10	15.568	188	430799	4000.00	ug/kg	84
17) Chrysene-d12	21.459	240	477806	4000.00	ug/kg	103
20) Perylene-d12	26.674	264	444268	4000.00	ug/kg	106
System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.291	172	18	0.25	ug/kg	-0.09
Spiked Amount 4000.000	Range 40 - 140		Recovery =	0.01%#		
15) 4-Terphenyl-d14	18.123	244	60	0.79	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery =	0.02%#		
Target Compounds						Qvalue
2) Naphthalene	11.143	128	2	0.03	ug/kg	70
3) 2-Methyl naphthalene	11.901	142	30	0.57	ug/kg	79
4) 1-Methyl naphthalene	12.093	142	5	0.10	ug/kg#	41
7) Acenaphthylene	13.348	152	27	0.34	ug/kg	90
8) Acenaphthene	13.511	153	26	0.50	ug/kg	95
9) Dibenzofuran	13.674	168	180734	2035.76	ug/kg	84
10) Fluorene	14.164	166	1574	20.50	ug/kg	98
12) Phenanthrene	15.607	178	232	No Quad Fit		
13) Anthracene	15.646	178	488	4.34	ug/kg	99
14) Fluoranthene	17.622	202	330	2.82	ug/kg	92
16) Pyrene	18.229	202	355	3.04	ug/kg	96
18) Benzo[a]anthracene	21.285	228	636	5.29	ug/kg	99
19) Chrysene	21.546	228	566	4.97	ug/kg	99
21) Benzo[b]fluoranthene	24.901	252	721	6.40	ug/kg	96
22) Benzo[k]fluoranthene	0.000	252	0	N.D.		
23) Benzo(j)fluoranthene	25.093	252	254655	2797.08	ug/kg	100
24) Benzo(e)pyrene	26.154	252	1582	14.11	ug/kg	83
25) Benzo[a]pyrene	26.337	252	536	5.08	ug/kg	89
26) Indeno[1,2,3-cd]pyrene	29.923	276	580	4.44	ug/kg	97
27) Dibenz[a,h]anthracene	29.914	278	357	3.40	ug/kg	91
28) Benzo[g,h,i]perylene	31.032	276	440	3.79	ug/kg	98

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160806\
Data File : 16080610.D
Acq On : 6 Aug 2016 6:55 pm
Operator :
Sample : SSCV (2500 ppb)
Misc : ICV
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Aug 08 08:00:24 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160806\
Data File : 16080611.D
Acq On : 6 Aug 2016 7:35 pm
Operator :
Sample : SSCV (2500 ppb)
Misc : ICV
ALS Vial : 11 Sample Multiplier: 1

Quant Time: Aug 08 08:00:27 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration

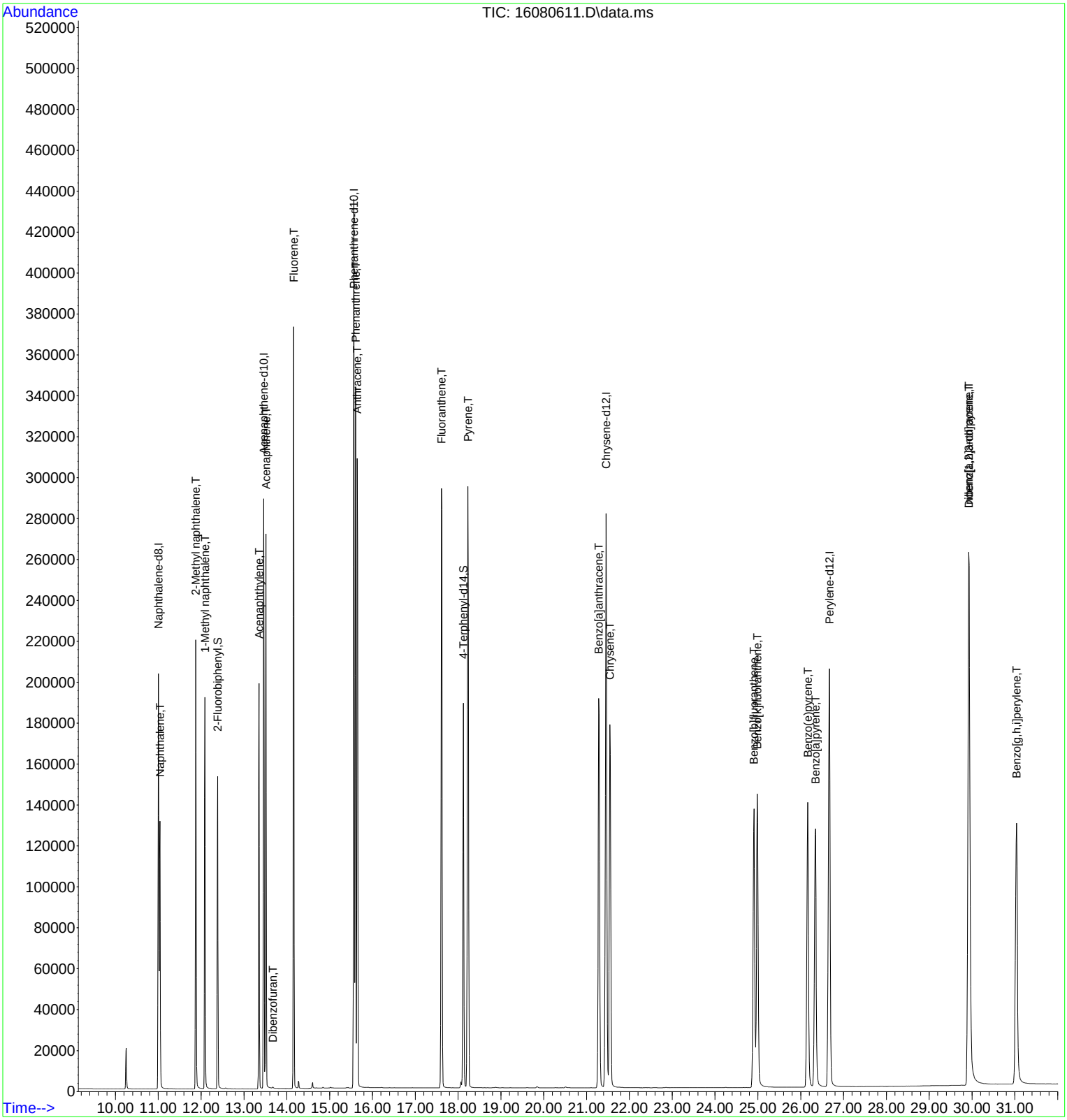
Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	11.003	136	245742	4000.00	ug/kg	93
6) Acenaphthene-d10	13.464	164	154116	4000.00	ug/kg	95
11) Phenanthrene-d10	15.567	188	484926	4000.00	ug/kg	94
17) Chrysene-d12	21.457	240	430894	4000.00	ug/kg	93
20) Perylene-d12	26.673	264	395276	4000.00	ug/kg	94
System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.386	172	125883	2302.66	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 57.57%			
15) 4-Terphenyl-d14	18.122	244	202550	2375.85	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery = 59.40%			
Target Compounds						Qvalue
2) Naphthalene	11.038	128	141492	2413.77	ug/kg	100
3) 2-Methyl naphthalene	11.875	142	115953	2901.92	ug/kg	100
4) 1-Methyl naphthalene	12.088	142	101878	2773.44	ug/kg	99
7) Acenaphthylene	13.350	152	177800	2493.65	ug/kg	100
8) Acenaphthene	13.513	153	120206	2579.68	ug/kg	100
9) Dibenzofuran	13.676	168	536	6.70	ug/kg	92
10) Fluorene	14.159	166	183741	2656.74	ug/kg	99
12) Phenanthrene	15.606	178	312738	2551.30	ug/kg	100
13) Anthracene	15.644	178	302294	2388.19	ug/kg	100
14) Fluoranthene	17.611	202	330048	2507.52	ug/kg	99
16) Pyrene	18.228	202	328202	2493.97	ug/kg	98
18) Benzo[a]anthracene	21.284	228	267528	2465.17	ug/kg	100
19) Chrysene	21.544	228	233562	2273.88	ug/kg	100
21) Benzo[b]fluoranthene	24.909	252	256365	2558.03	ug/kg	100
22) Benzo[k]fluoranthene	24.986	252	240456	2880.23	ug/kg	99
23) Benzo(j)fluoranthene	0.000	252	0	N.D.		
24) Benzo(e)pyrene	26.162	252	253169	2538.54	ug/kg	100
25) Benzo[a]pyrene	26.345	252	244635	2608.46	ug/kg	99
26) Indeno[1,2,3-cd]pyrene	29.931	276	301276	2589.59	ug/kg	97
27) Dibenz[a,h]anthracene	29.922	278	247697	2655.14	ug/kg	98
28) Benzo[g,h,i]perylene	31.040	276	256010	2478.82	ug/kg	99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160806\
Data File : 16080611.D
Acq On : 6 Aug 2016 7:35 pm
Operator :
Sample : SSCV (2500 ppb)
Misc : ICV
ALS Vial : 11 Sample Multiplier: 1

Quant Time: Aug 08 08:00:27 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration



ICP-MS3
For

DHL Work Order
1607317

ICP-MS3_160809B
For

DHL Work Order
1607317

Lab Data Review Check List
EPA Method 6020 / 6020A / 200.8 - Trace Metals by ICP-MS

PROJECT AND BATCH NUMBERS ARE LISTED ON THE RUN LOG	Run ID: ICP-MS3_160809B SOP: MET-ICPMS-01			
Review Item	**Yes**	**No**	**N/A**	**2nd Level Review**
Data Folder Contents 1. Is the Prep Batch Report included? ***Check the Prep Start/End Dates, Sample Amounts, Bottle #s***	X			
2. Are the reagents and spikes listed on the Prep Batch Report current with a valid expiration date? ***All standard/QC sample preparations shall be documented in LIMS***	X			x
3. Is the Run Log and instrument sequence included? ***Check the Test Code, Sample Type, Batch ID, and Analysis Date/Time***	X			

Daily Demonstration of Performance

QC items that do not meet method/SOP/project requirements will be described on the run log. All variances that impact data quality will be described in the Variance/Comment Section on page 2.

Review Item	Frequency	Limits	Pass	Fail (List Batch/Sample) **See Run Log**		2nd Level Review
Tune	Before ICAL	RSD ≤ 5% / Peak Width@10% <0.9amu	X			
P/A Factor	Before ICAL	Increasing trend	X			x
Initial Calibration Curve (ICAL) (Blank + 4 Standards)	Prior to samples and when ICV fails	R ≥ 0.995 (DoD) R ≥ 0.998 (6020A)	X			
Review Item	**Frequency**	**Limits**	**Pass**	**Fail**	**N/A**	**Review**
ICSA (N/A for Method 200.8+U)	After calibration & every 12 hours	< RL (except Mn & Zn)	X			x
ICSAB (N/A for Method 200.8+U)	After calibration & every 12 hours	80-120% (correct for ICSA result)	X			
Note: LCVLs and ICSA/ICSAB are N/A for Method 200.8 or project-specific exceptions						
ICV (Second Source Verification)	After ICAL	90-110%	X			
ICB	After calibration	< MDL	X			
CCV	Every 10 samples	90-110%	X			
CCB	Every 10 samples	< MDL (ALL + DoD)	X			
Internal Standards	Every sample and QC sample	> 70% (6020A) 60-125% (200.8) 30-120% (DoD)	X			
LCVL (6020A test code)	After ICAL, every 10 samples and end of run	70-130%			X	
LCVL (All metals test codes except 200.8/6020A)	After ICAL and end of run	70-130%	X			x
Method Blank (MB)	Every Batch	< MDL / <½ RL (DoD) or <1/10 the sample/reg limit	X			
Filter/TCLP/SPLP Blank	Filter-Dissolved only TCLP / SPLP	< MDL / <½ RL (DoD) or <1/10 the sample/reg limit			X	
Lab Control Sample (LCS)	Every Batch	80-120%	X			
Lab Control Sample Dup (LCSD)	Every Batch	80-120%	X			
LCSD - RPD	Every LCS/LCSD	15 (H2O) / 20 (Soil)	X			
Matrix Spike/ Matrix Spike Duplicate (MS/MSD)	Every Batch	80-120%	X			
MSD - RPD	Every MS/MSD	15 (H2O) / 20 (Soil)	X			
Dilution Test (SD) - RPD	Every Batch	10		x		
Post Digestion Spike (PDS)	Every Batch	75-125 / 80-120 (6020A)	X			

Lab Data Review Check List
EPA Method 6020 / 6020A / 200.8 - Trace Metals by ICP-MS

Review Item	Criteria	Yes	No	N/A	2nd Level Review
Sample Analysis 1. Are all sample hold times met?	6 months	X			x
2. Are all samples with concentrations > the highest standard used for calibration diluted and reanalyzed?	All results > high point of ICAL must be diluted	x			
3. Are ALL reported analytes and reported results > MDL highlighted by the analyst?		X	**Confirm with analyst if LIMS result does not match Labcore**		

VARIANCE REPORT

QC items that do not meet method/SOP/project requirements will be described on the run log. All variances that impact data quality will be described in this section.

NON-CONFORMANCES / VARIANCE	Criteria	Yes	No	N/A	2nd Level
1. Are all non-conformances and corrective actions included and noted?	All deviations from the method and SOP that affect data quality	x			x
2. Does the variance require approval by the Technical Director/General Manager/QA Manager?		x			

TECHNICAL DIRECTOR / QA MANAGER APPROVAL
SIGNATURE AND DATE STAMP:

Description and Corrective Actions of QC items that do not meet method/SOP/project requirements:

****INCLUDE VARIANCE ITEM / REASON / CORRECTIVE ACTION / IMPACT ON DATA****

VARIANCE ITEM	REASON	CORRECTIVE ACTION
__ CCV out of control (± 10%)	__ Carryover from previous run	__ Reanalyze QC to confirm
__ CCB out of control (> MDL / >½ RL)	__ Cross contamination	__ Recalibrate
__ MB out of control (> RL / >½ RL)	__ Lab Artifact	__ Reprep/Reanalyze sample
__ LCS __ LCSD out of control (± 20%)	__ Prep Spike error (describe)	__ Reprep/Reanalyze Batch
__ MS __ MSD out of control (± 20%)	__ Matrix Effect	__ Reanalyze Batch/Sample/QC
__ RPD out of control for MS/MSD (15/25)	__ High Levels of Target Metals	__ Verify reagents are clean
__ Internal Standard(s) out of control (see Method)	__ Insufficient sample for QC	__ Reanalyze sample to confirm
__ No MS/MSD prepared - LCS/LCSD used instead	__ Digestion/Prep Error	__ Sample results ND w/ dilution
__ Missing QC (other than MS/MSD)	__ Analytical Error	__ Client notified and approved
__ QC sample(s) was mis-spiked	__ Client Request	__ Flag Data/ Case Narative
__ ICSA/ICSAB missing or out of control (± 20%)		__ Accept data
__ LCVL out of control (± 30%)		__ Cal Std high and sample ND
__ Other (describe below)	__ Other (describe below)	__ Other (describe below)

General Comments and Impact on Data:

Analyst: Cara Van Dyke Date of Completion: 08/10/2016

Second-Level Review: Janice Whitt Date Stamp: 8/10/2016

REVIEWED BY
By Janice Whitt at 2:34:49 PM, 8/10/2016

DHL Analytical, Inc.

Run ID: **ICP-MS3_160809B** **Run No.:** 87530

Analytical Run Date: 8/9/2016 **InstrumentID:** ICP-MS3

Analyst: Cassie Van Dyke

SampID	DF	TestCode	SampType	Batch ID	Analysis Date/Time	Q	Comments
BLANK STD 1	1	ICPMS_TWDOD	CAL	R87530	8/9/2016 12:19:00 PM		
L2-160809	1	ICPMS_TWDOD	CAL	R87530	8/9/2016 12:25:00 PM		
L-160809	1	ICPMS_TWDOD	CAL	R87530	8/9/2016 12:31:00 PM		
10X-160809	1	ICPMS_TWDOD	CAL	R87530	8/9/2016 12:37:00 PM		
5X-160809	1	ICPMS_TWDOD	CAL	R87530	8/9/2016 12:43:00 PM		
2X-160809	1	ICPMS_TWDOD	CAL	R87530	8/9/2016 12:49:00 PM		
H-160809	1	ICPMS_TWDOD	CAL	R87530	8/9/2016 12:55:00 PM		
H2-160809	1	ICPMS_TWDOD	CAL	R87530	8/9/2016 1:01:00 PM		
ICSA-160809	1	ICPMS_TWDOD	ICSA	R87530	8/9/2016 1:18:00 PM		
ICSAB-160809	1	ICPMS_TWDOD	ICSB	R87530	8/9/2016 1:24:00 PM		
ICV1-160809	1	ICPMS_TWDOD	ICV	R87530	8/9/2016 1:42:00 PM		
ICB1-160809	1	ICPMS_TWDOD	ICB	R87530	8/9/2016 1:48:00 PM		
ILCVL-160809	1	ICPMS_TWDOD	LCVL	R87530	8/9/2016 1:54:00 PM		
CCV5-160809	1	ICPMS_TWDOD	CCV	R87530	8/9/2016 10:34:00 PM		
LCVL5-160809	1	ICPMS_TWDOD	LCVL	R87530	8/9/2016 10:45:00 PM		
CCB5-160809	1	ICPMS_TWDOD	CCB	R87530	8/9/2016 10:51:00 PM		
MB-76687	1	ICPMS_TWDOD	MBLK	76687	8/9/2016 10:57:00 PM		
LCS-76687	1	ICPMS_TWDOD	LCS	76687	8/9/2016 11:03:00 PM		
LCSD-76687	1	ICPMS_TWDOD	LCSD	76687	8/9/2016 11:09:00 PM		
1607337-26A	1	ICPMS_TWDOD	SAMP	76687	8/9/2016 11:21:00 PM		
1607337-26A SD	5	ICPMS_TWDOD	SD	76687	8/9/2016 11:27:00 PM		DNR. Sample was misprepared at bench and sample was not detected. As per DOD QSM 5.0, criteria doesn't apply for samples with concentration <50x the LOQ, therefore no effect to data. PDS passes.
1607219-13A	1	ICPMS_TWDOD	SAMP	76687	8/9/2016 11:33:00 PM		
1607219-26A	1	ICPMS_TWDOD	SAMP	76687	8/9/2016 11:39:00 PM		
1607239-16A	1	ICPMS_TWDOD	SAMP	766a87	8/9/2016 11:45:00 PM		
1607239-32A	1	ICPMS_TWDOD	SAMP	76687	8/9/2016 11:51:00 PM		
1607256-13A	1	ICPMS_TWDOD	SAMP	76687	8/10/2016 12:03:00 AM		
1607256-26A	1	ICPMS_TWDOD	SAMP	76687	8/10/2016 12:09:00 AM		

Std ID	Std Name	Type	Exp. Date
MET-CCV-160804	ICPMS CCV 200/5000 PPB		02/02/2017
MET-H2CAL-1608	ICPMS High Cal2 2000ppb std 8		02/02/2017
MET-HCAL-16080	ICPMS High Cal 500ppb/10ppm s		02/02/2017
MET-ICV-160804	ICPMS ICV 100 ppb		02/02/2017
MET-IS-160511	INTERNAL STANDARD 1 PPM		11/09/2016
MET-L2CAL-16080	ICPMS Low Cal2 1/20ppb std 2		02/02/2017
MET-LCAL-160804	ICPMS Low Cal 10/200ppb std 3		02/02/2017
MET-LCAL10X-16	ICPMS Low Cal 10/200ppb std 4		02/02/2017
MET-LCAL5X-160	ICPMS Low Cal 10/200ppb std 5		02/02/2017
MET-LCVLSPIKE-	LCVL METALS SPIKE (100/500		11/07/2016
MET-MCAL-16080	ICPMS Mid Cal 250/5000ppb std		02/02/2017
MET-PA-160421	ICPMS PA FACTOR SOLUTION		10/20/2016
MET-PDS-160701-	10 PPM Ag+Sb PDS		01/01/2017
MET-PDS-160701-	10 PPM CUSTOM PDS SOLUTI		01/01/2017
MET-PDS-160701-	250 PPM Naturals+Al+Fe PDS		07/01/2017

DHL Analytical, Inc.

Run ID: ICP-MS3_160809B **Run No.:** 87530

1607256-27A	1	ICPMS_TWDOD	SAMP	76687	8/10/2016 12:15:00 AM		
1607265-13A	1	ICPMS_TWDOD	SAMP	76687	8/10/2016 12:21:00 AM		
1607265-26A	1	ICPMS_TWDOD	SAMP	76687	8/10/2016 12:28:00 AM		
1607337-26A PDS	1	ICPMS_TWDOD	PDS	76687	8/10/2016 12:34:00 AM		
CCV6-160809	1	ICPMS_TWDOD	CCV	R87530	8/10/2016 12:40:00 AM		
LCVL6-160809	1	ICPMS_TWDOD	LCVL	R87530	8/10/2016 12:52:00 AM		
CCB6-160809	1	ICPMS_TWDOD	CCB	R87530	8/10/2016 12:58:00 AM		
1607294-13A	1	ICPMS_TWDOD	SAMP	76687	8/10/2016 1:04:00 AM		
1607294-24A	1	ICPMS_TWDOD	SAMP	76687	8/10/2016 1:10:00 AM		
1607294-37A	1	ICPMS_TWDOD	SAMP	76687	8/10/2016 1:16:00 AM		
1607294-50A	1	ICPMS_TWDOD	SAMP	76687	8/10/2016 1:22:00 AM		
ICSA-160809	1	ICPMS_TWDOD	ICSA	R87530	8/10/2016 1:28:00 AM		
ICSAB-160809	1	ICPMS_TWDOD	ICSB	R87530	8/10/2016 1:34:00 AM		
1607294-63A	1	ICPMS_TWDOD	SAMP	76687	8/10/2016 1:52:00 AM		
1607294-76A	1	ICPMS_TWDOD	SAMP	76687	8/10/2016 2:04:00 AM		
1607314-07A	1	ICPMS_TWDOD	SAMP	76687	8/10/2016 2:10:00 AM		
1607317-13A	1	ICPMS_TWDOD	SAMP	76687	8/10/2016 2:16:00 AM		
1607317-26A	1	ICPMS_TWDOD	SAMP	76687	8/10/2016 2:22:00 AM		
1607337-13A	1	ICPMS_TWDOD	SAMP	76687	8/10/2016 2:28:00 AM		
CCV7-160809	1	ICPMS_TWDOD	CCV	R87530	8/10/2016 2:34:00 AM		
LCVL7-160809	1	ICPMS_TWDOD	LCVL	R87530	8/10/2016 2:46:00 AM		
CCB7-160809	1	ICPMS_TWDOD	CCB	R87530	8/10/2016 2:52:00 AM		

Std ID	Std Name	Type	Exp. Date
MET-CCV-160804	ICPMS CCV 200/5000 PPB		02/02/2017
MET-H2CAL-1608	ICPMS High Cal2 2000ppb std 8		02/02/2017
MET-HCAL-16080	ICPMS High Cal 500ppb/10ppm s		02/02/2017
MET-ICV-160804	ICPMS ICV 100 ppb		02/02/2017
MET-IS-160511	INTERNAL STANDARD 1 PPM		11/09/2016
MET-L2CAL-16080	ICPMS Low Cal2 1/20ppb std 2		02/02/2017
MET-LCAL-160804	ICPMS Low Cal 10/200ppb std 3		02/02/2017
MET-LCAL10X-16	ICPMS Low Cal 10/200ppb std 4		02/02/2017
MET-LCAL5X-160	ICPMS Low Cal 10/200ppb std 5		02/02/2017
MET-LCVLSPIKE-	LCVL METALS SPIKE (100/500		11/07/2016
MET-MCAL-16080	ICPMS Mid Cal 250/5000ppb std		02/02/2017
MET-PA-160421	ICPMS PA FACTOR SOLUTION		10/20/2016
MET-PDS-160701-	10 PPM Ag+Sb PDS		01/01/2017
MET-PDS-160701-	10 PPM CUSTOM PDS SOLUTI		01/01/2017
MET-PDS-160701-	250 PPM Naturals+Al+Fe PDS		07/01/2017

	Method	Type	Vial	Data File	Sample	Comment	Dil/Lvl	ISTD Conc	Action on Failure	Skip	Result
1		Keyword		CALBEG	Start of CALIB						
2	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1101		BLANK	CAL ICPMS_TW	1.000				
3	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1102		BLANK	CAL ICPMS_TW	1.000				
4	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1103		BLANK	CAL ICPMS_TW	1.000				
5	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1104		BLANK	CAL ICPMS_TW	1.000				
6	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		BLANK	CAL ICPMS_TW	1.000				
7	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalBlk	2101		BLANK STD 1	CAL ICPMS_TW	Level 1				
8	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalStd	2102		L2-160809	CAL ICPMS_TW	Level 2				
9	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalStd	2103		L-160809	CAL ICPMS_TW	Level 3				
10	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalStd	2104		10X-160809	CAL ICPMS_TW	Level 4				
11	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalStd	2105		5X-160809	CAL ICPMS_TW	Level 5				
12	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalStd	2106		2X-160809	CAL ICPMS_TW	Level 6				
13	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalStd	2107		H-160809	CAL ICPMS_TW	Level 7				
14	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalStd	2108		H2-160809	CAL ICPMS_TW	Level 8				
15	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1104		BLANK	CAL ICPMS_TW	1.000				
16	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		BLANK	CAL ICPMS_TW	1.000				
17		Keyword		CALEND	End of CALIB						
18		Keyword		ICSBEG	Start of ICS						
19	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	ICS-A	2109		ICSA-160809	ICSAICPMS_TW	1.000				
20	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	ICS-AB	2110		ICSAB-160809	ICSBICPMS_TW	1.000				
21	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1103		RINSE	CAL ICPMS_TW	1.000				
22	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1104		RINSE	CAL ICPMS_TW	1.000				
23		Keyword		ICSEND	End of ICS						
24		Keyword		SMPLBEG	Start of SMPL						
25	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	ICV	2111		ICV1-160809	ICV ICPMS_TW	1.000				

	Method	Type	Vial	Data File	Sample	Comment	Dil/Lvl	ISTD Conc	Action on Failure	Skip	Result
26	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	ICB	1104		ICB1-160809	ICB ICPMS_TW	1.000				
27	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCVL5	2112		ILCVL-160809	LCVLICPMS_TW	1.000				
28	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	PB	2201		MB-76663	MBLKICPMS_TSDOD1	5.000				
29	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCS	2202		LCS-76663	LCS ICPMS_TSDOD1	5.000				
30	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCS	2203		LCSD-76663	LCSDICPMS_TSDOD1	5.000				
31	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1101		RINSE	CCB ICPMS_TW	1.000				
32	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	AllRef	2204		1607256-28A	SAMPICPMS_TSDOD1	5.000				
33	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	DT	2205		1607256-28A SD	SD ICPMS_TSDOD1	25.00				
34	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2206		1607256-31A	SAMPICPMS_TSDOD1	5.000	Level 1			
35	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2207		1607256-32A	SAMPICPMS_TSDOD1	5.000	Level 1			
36	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2208		1607256-33A	SAMPICPMS_TSDOD1	5.000	Level 1			
37	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2209		1607256-34A	SAMPICPMS_TSDOD1	5.000				
38	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2210		1607256-35A	SAMPICPMS_TSDOD1	5.000				
39	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2211		1607256-36A	SAMPICPMS_TSDOD1	5.000				
40	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2212		1607256-37A	SAMPICPMS_TSDOD1	5.000				
41	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2301		1607256-38A	SAMPICPMS_TSDOD1	5.000				
42	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2302		1607256-39A	SAMPICPMS_TSDOD1	5.000				
43	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	PDS	2303		1607256-28A PDS	PDS ICPMS_TSDOD1	5.000				
44	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	MS_S	2304		1607256-28A MS	MS ICPMS_TSDOD1	5.000				
45	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	MS_S	2305		1607256-28A MSD	MSD ICPMS_TSDOD1	5.000				
46	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	1307		CCV1-160809	CCV ICPMS_TW	1.000				
47	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1104		CCB1-160809	CCB ICPMS_TW	1.000				
48	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	1307		CCV1-160809	CCV ICPMS_TW	1.000				

	Method	Type	Vial	Data File	Sample	Comment	Dil/Lvl	ISTD Conc	Action on Failure	Skip	Result
49	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCVL5	2512		LCVL1-160809	LCVLICPMS_TW	1.000				
50	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		CCB1-160809	CCB ICPMS_TW	1.000				
51	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2306		1607256-40A	SAMPICPMS_TSDOD1	5.000				
52	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2307		1607256-41A	SAMPICPMS_TSDOD1	5.000				
53	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2308		1607256-42A	SAMPICPMS_TSDOD1	5.000				
54	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2309		1607265-01A	SAMPICPMS_TSDOD1	50.00				
55	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2310		1607265-02A	SAMPICPMS_TSDOD1	5.000				
56	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1101		RINSE	CCB ICPMS_TW	1.000				
57	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2311		1607265-03A	SAMPICPMS_TSDOD1	5.000				
58	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2312		1607265-04A	SAMPICPMS_TSDOD1	5.000				
59	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2401		1607265-05A	SAMPICPMS_TSDOD1	5.000				
60	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2402		1607265-06A	SAMPICPMS_TSDOD1	5.000				
61	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2403		1607265-07A	SAMPICPMS_TSDOD1	5.000				
62	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	1307		CCV2-160809	CCV ICPMS_TW	1.000				
63	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1104		CCB2-160809	CCB ICPMS_TW	1.000				
64	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCVL5	2112		LCVL2-160809	LCVLICPMS_TW	1.000				
65	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		CCB2-160809	CCB ICPMS_TW	1.000				
66	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2501		1606256-18A	SAMPICPMS_TSDOD1	5.000				
67	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2502		1607256-19A	SAMPICPMS_TSDOD1	5.000				
68	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2503		1607256-20A	SAMPICPMS_TSDOD1	5.000				
69	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2504		1607256-21A	SAMPICPMS_TSDOD1	5.000				
70	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2505		1607256-22A	SAMPICPMS_TSDOD1	5.000				
71	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1101		RINSE	CCB ICPMS_TW	1.000				

	Method	Type	Vial	Data File	Sample	Comment	Dil/Lvl	ISTD Conc	Action on Failure	Skip	Result
72	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2506		1607256-23A	SAMPICPMS_TSDOD1	5.000				
73	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2507		1607256-24A	SAMPICPMS_TSDOD1	5.000				
74	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2508		1607256-25A	SAMPICPMS_TSDOD1	5.000				
75	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2509		1607256-29A	SAMPICPMS_TSDOD1	5.000				
76	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2510		1607256-30A	SAMPICPMS_TSDOD1	5.000				
77	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	1307		CCV3-160809	CCV ICPMS_TW	1.000				
78	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		CCB3-160809	CCB ICPMS_TW	1.000				
79	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCVL5	2512		LCVL3-160809	LCVLICPMS_TW	1.000				
80	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		CCB3-160809	CCB ICPMS_TW	1.000				
81	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	PB	3101		MB-76670	MBLKICPMS_TSDOD1	5.000				
82	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCS	3102		LCS-76670	LCS ICPMS_TSDOD1	5.000				
83	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCS	3103		LCSD-76670	LCSDICPMS_TSDOD1	5.000				
84	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1101		RINSE	CCB ICPMS_TW	1.000				
85	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	AllRef	3104		1607294-09A	SAMPICPMS_TSDOD1	5.000				
86	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	DT	3105		1607294-09A SD	SD ICPMS_TSDOD1	25.00				
87	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3106		1607294-04A	SAMPICPMS_TSDOD1	5.000				
88	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3107		1607294-05A	SAMPICPMS_TSDOD1	5.000				
89	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3108		1607294-06A	SAMPICPMS_TSDOD1	5.000				
90	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3109		1607294-07A	SAMPICPMS_TSDOD1	5.000				
91	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3110		1607294-08A	SAMPICPMS_TSDOD1	5.000				
92	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3111		1607294-10A	SAMPICPMS_TSDOD1	5.000				
93	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3112		1607294-11A	SAMPICPMS_TSDOD1	5.000				
94	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3201		1607294-12A	SAMPICPMS_TSDOD1	5.000				

	Method	Type	Vial	Data File	Sample	Comment	Dil/Lvl	ISTD Conc	Action on Failure	Skip	Result
95	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3202		1607294-14A	SAMPICPMS_TSDOD1	5.000				
96	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	PDS	3203		1607294-09A PDS	PDS ICPMS_TSDOD1	5.000				
97	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	MS_S	3204		1607294-09A MS	MS_ICPMS_TSDOD1	5.000				
98	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	MS_S	3205		1607294-09A MSD	MSD ICPMS_TSDOD1	5.000				
99	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	1307		CCV4-160809	CCV ICPMS_TW	1.000				
100	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1104		CCB4-160809	CCB ICPMS_TW	1.000				
101	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCVL5	2112		LCVL4-160809	LCVLICPMS_TW	1.000				
102	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		CCB4-160809	CCB ICPMS_TW	1.000				
103	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	1307		CCV4-160809	CCV ICPMS_TW	1.000				
104	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3206		1607294-15A	SAMPICPMS_TSDOD1	5.000				
105	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3207		1607294-16A	SAMPICPMS_TSDOD1	5.000				
106	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3208		1607294-17A	SAMPICPMS_TSDOD1	5.000				
107	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3209		1607294-18A	SAMPICPMS_TSDOD1	50.00				
108	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3210		1607294-19A	SAMPICPMS_TSDOD1	5.000				
109	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1101		RINSE	CCB ICPMS_TW	1.000				
110	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3211		1607294-20A	SAMPICPMS_TSDOD1	5.000				
111	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3212		1607294-21A	SAMPICPMS_TSDOD1	5.000				
112	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3301		1607294-22A	SAMPICPMS_TSDOD1	5.000				
113	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3302		1607294-23A	SAMPICPMS_TSDOD1	5.000				
114	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3303		1607294-25A	SAMPICPMS_TSDOD1	5.000				
115	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	1307		CCV5-160809	CCV ICPMS_TW	1.000				
116	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		CCB5-160809	CCB ICPMS_TW	1.000				
117	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCVL5	2512		LCVL5-160809	LCVLICPMS_TW	1.000				

	Method	Type	Vial	Data File	Sample	Comment	Dil/Lvl	ISTD Conc	Action on Failure	Skip	Result
118	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		CCB5-160809	CCB ICPMS_TW	1.000				
119	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	PB W	3401		MB-76663	MBLKICPMS_TWDOD1	1.000				
120	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCS W	3402		LCS-76663	LCS ICPMS_TWDOD1	1.000				
121	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCS W	3403		LCSD-766487	LCSDICPMS_TWDOD1	1.000				
122	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1101		RINSE	CCB ICPMS_TW	1.000				
123	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	AllRef	3404		1607337-26A	SAMPICPMS_TWDOD1	1.000				
124	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	DT	3405		1607337-26A SD	SD ICPMS_TWDOD1	5.000				
125	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	3406		1607219-13A	SAMPICPMS_TWDOD1	1.000				
126	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	3407		1607219-26A	SAMPICPMS_TWDOD1	1.000				
127	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	3408		1607239-16A	SAMPICPMS_TWDOD1	1.000				
128	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	3409		1607239-32A	SAMPICPMS_TWDOD1	1.000				
129	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1102		RINSE	CCB ICPMS_TW	1.000				
130	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	3410		1607256-13A	SAMPICPMS_TWDOD1	1.000				
131	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	3411		1607256-26A	SAMPICPMS_TWDOD1	1.000				
132	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	3412		1607256-27A	SAMPICPMS_TWDOD1	1.000				
133	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	3501		1607265-13A	SAMPICPMS_TWDOD1	1.000				
134	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	3502		1607265-26A	SAMPICPMS_TWDOD1	1.000				
135	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	PDS	3503		1607337-26A PDS	PDS ICPMS_TWDOD1	1.000				
136	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	1307		CCV6-160809	CCV ICPMS_TW	1.000				
137	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1104		CCB6-160809	CCB ICPMS_TW	1.000				
138	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCVL5	2112		LCVL6-160809	LCVLICPMS_TW	1.000				
139	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		CCB6-160809	CCB ICPMS_TW	1.000				
140	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	3504		1607294-13A	SAMPICPMS_TWDOD1	1.000				

	Method	Type	Vial	Data File	Sample	Comment	Dil/Lvl	ISTD Conc	Action on Failure	Skip	Result
141	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	3505		1607294-24A	SAMPICPMS_TWDOD1	1.000				
142	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	3506		1607294-37A	SAMPICPMS_TWDOD1	1.000				
143	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	3507		1607294-50A	SAMPICPMS_TWDOD1	1.000				
144	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	3508		1607294-63A	SAMPICPMS_TWDOD1	1.000				
145	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1101		RINSE	CCB ICPMS_TW	1.000				
146	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	3509		1607294-76A	SAMPICPMS_TWDOD1	1.000				
147	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	3510		1607314-07A	SAMPICPMS_TWDOD1	1.000				
148	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	3511		1607317-13A	SAMPICPMS_TWDOD1	1.000				
149	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	3512		1607317-26A	SAMPICPMS_TWDOD1	1.000				
150	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	3312		1607337-13A	SAMPICPMS_TWDOD1	1.000				
151	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	1307		CCV7-160809	CCV ICPMS_TW	1.000				
152	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		CCB7-160809	CCB ICPMS_TW	1.000				
153	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCVL5	2512		LCVL7-160809	LCVLICPMS_TW	1.000				
154	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		CCB7-160809	CCB ICPMS_TW	1.000				
155	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1101		RINSE	CCB ICPMS_TW	1.000				
156	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1102		RINSE	CCB ICPMS_TW	1.000				
157	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1103		RINSE	CCB ICPMS_TW	1.000				
158	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1104		RINSE	CCB ICPMS_TW	1.000				
159	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		RINSE	CCB ICPMS_TW	1.000				
160	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1101		RINSE	CCB ICPMS_TW	1.000				
161	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1102		RINSE	CCB ICPMS_TW	1.000				
162	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1103		RINSE	CCB ICPMS_TW	1.000				
163		Keyword		StandBy							
164		Keyword		SMPLEND	End of SMPL						

	Method	Type	Vial	Data File	Sample	Comment	Dil/Lvl	ISTD Conc	Action on Failure	Skip	Result
165		Keyword		End	End of Sequence						
166		Keyword		CCVBEG	Start of CCV						
167		Keyword		CCVEND	End of CCV						
168		Keyword		BLKBEG	Start of BLANK						
169		Keyword		BLKEND	End of BLANK						
170		Keyword		ERRBEG	Start of ERRTERM						
171		Keyword		ERREND	End of ERRTERM						

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **8/5/2016 10:30:04 AM**
Digestion:
Prep End Date:

Prep Batch **76687** Prep Code: **3005ADOD** Technician: **Cassie Van Dyke**

Prep Factor Units: **mL/mL**

Equipment List

- Hot Block #6
- Thermometer #71
- Pipette #P-09-Spikes
- Pipette #P-01 Samples

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607219-13A	Equip Blank		50	50	1.000	1 of 1	
wait til more project EQ BLANKS arrive to start this batch.							
1607219-26A	Equip Blank		50	50	1.000	1 of 1	
1607239-16A	Equip Blank		50	50	1.000	1 of 1	
1607239-32A	Equip Blank		50	50	1.000	1 of 1	
1607256-13A	Equip Blank		50	50	1.000	1 of 1	
1607256-26A	Equip Blank		50	50	1.000	1 of 1	
1607256-27A	Equip Blank		50	50	1.000	1 of 1	
1607265-13A	Equip Blank		50	50	1.000	1 of 1	
1607265-26A	Equip Blank		50	50	1.000	1 of 1	
1607294-13A	Equip Blank		50	50	1.000	1 of 1	
1607294-24A	Equip Blank		50	50	1.000	1 of 1	
1607294-37A	Equip Blank		50	50	1.000	1 of 1	
1607294-50A	Equip Blank		50	50	1.000	1 of 1	
1607294-63A	Equip Blank		50	50	1.000	1 of 1	
1607294-76A	Equip Blank		50	50	1.000	1 of 1	
1607314-07A	Equip Blank		50	50	1.000	1 of 1	
1607317-13A	Equip Blank		50	50	1.000	1 of 1	
1607317-26A	Equip Blank		50	50	1.000	1 of 1	
1607337-13A	Aqueous		50	50	1.000	1 of 1	
1607337-26A	Aqueous		50	50	1.000	1 of 1	
LCS-76687	Aqueous		50	50	1.000	of	
LCSD-76687	Aqueous		50	50	1.000	of	
MB-76687	Aqueous		50	50	1.000	of	

Number	Reagent Name	Amt	Units	Exp. Da
10056	Digestion Vessels	1	ml	02/10/2026
10399	Nitric Acid (Trace Metal Grade)	1	ml	05/24/2026
10400	Hydrochloric Acid (trace metal grade)	1	ml	05/24/2026

Spk ID	Spike Name	Samp Type	Amt (mL or g)	Exp. Date
MET-150914-10	AL PRIMARY STD 1000 PPM	LCS/MS/MSD	0.25	10/01/2016
MET-150914-9	FE PRIMARY STD 1000 PPM	LCS/MS/MSD	0.25	10/01/2016
MET-SPIKE-160701-3	2500 PPM NATURALS SPIKE	LCS/MS/MSD	0.1	09/29/2016
MET-SPIKE-160715-4B	50 PPM Sb+Ag CAL	LCS/MS/MSD	0.2	10/13/2016
MET-SPIKE-160715-5B	50 PPM Custom+Sn,Ti,B,Mo,Sr CAL	LCS/MS/MSD	0.2	10/13/2016

~~10:53~~ CHO 8-5-16
12:32 - 18:16

REVIEWED BY
By Janice Whitt at 2:24:16 PM, 8/10/2016

8/5/18

MECHANICAL VOLUMETRIC PIPETTE VOLUME DAILY CHECK - DOD QSM 5.0

ANALYST:	SP	**BALANCE #:**	26	
TEST DATE:	08/05/2016	**Water is at Room Temperatue (70-73°F) / (21-23°C)**		
PIPETTER LAB ID:	P-01, P-09	**WATER TEMP (°C):**	**21-23°C**	
TEST VOLUME:	See Below	**WATER DENSITY:**	**0.998**	**(0.9980-0.9976)**

REFERENCE:	DoD QSM 5.0
# of REPLICATES:	3
LABWARE TYPE:	MECHANICAL VOLUMETRIC PIPETTE
FREQUENCY:	DAILY BEFORE USE
MEAN CRITERIA:	± 2% OF NOMINAL VOLUME (VOLUME OF USE/TEST VOLUME)
RSD CRITERIA:	< 1% OF NOMINAL VOLUME (BASED ON MINIMUM OF 3 REPLICATE MEASUREMENTS)

1) RECORD ROOM AND WATER TEMPERATURE	**% TEST VOL = Volume of H2O at °C/Test Volume * 100**
2) TARE VESSEL ON BALANCE. ADD TEST VOLUME.	**%RSD = STDEV (Mean Volume)/AVERAGE (Mean Volume) *100**
3) WEIGH 3 REPLICATES AT THE TEST VOLUME.	
4) DETERMINE TOTAL WT.	
5) CALCULATE VOLUME OF H2O AT °C (in mL)	**VOLUME OF H2O AT °C = TOTAL WT / WATER DENSITY**

					BIAS	PRECISION
PIPETTE ID: P-01	**TEST VOLUME (mL)**	**TOTAL WT (g)**	**Volume of H_2O at °C**	**% TEST VOL (98-102%)**	**MEAN CRITERIA (± 2%)**	**% RSD Calculated**
1	**5.00**	5.0031	5.0131	**100.26**	**PASS**	**RSD MUST BE ≤ 1% OF TEST VOLUME VALUE**
2		4.9858	4.9958	**99.92**		
3		4.9726	4.9826	**99.65**		
AVERAGE (MEAN)		**4.987**	**4.997**	**99.94**		**0.307**
						PASS

PIPETTE ID: P-09	**TEST VOLUME (mL)**	**TOTAL WT (g)**	**Volume of H_2O at °C**	**% TEST VOL (98-102%)**	**MEAN CRITERIA (± 2%)**	**% RSD Calculated**
1	**0.20**	0.2014	0.2018	**100.90**	**PASS**	**RSD MUST BE ≤ 1% OF TEST VOLUME VALUE**
2		0.2021	0.2025	**101.25**		
3		0.2021	0.2025	**101.25**		
AVERAGE (MEAN)		**0.202**	**0.202**	**101.14**		**0.200**
						PASS

PIPETTE ID:	**TEST VOLUME (mL)**	**TOTAL WT (g)**	**Volume of H_2O at °C**	**% TEST VOL (98-102%)**	**MEAN CRITERIA (± 2%)**	**% RSD Calculated**
1						**RSD MUST BE ≤ 1% OF TEST VOLUME VALUE**
2						
3						
AVERAGE (MEAN)						

8/5/16
Analyst / Date

REVIEWED BY
By Janice Whitt at 2:24:24 PM, 8/10/2016
Review and Approved / Date

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **8/5/2016 10:30:04 AM**
Digestion: **Start: 8/5/2016 12:32:00 PM / Stop: 8/5/2016 6:16:00 PM**
Prep End Date: **8/5/2016 6:34:00 PM**

Prep Batch **76687** Prep Code: **3005ADOD** Technician: **Cassie Van Dyke**

Prep Factor Units: **mL/mL**

Equipment List

Hot Block #6
Thermometer #71
Pipette #P-09-Spikes
Pipette #P-01 Samples

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607219-13A	Equip Blank		50	50	1.000	1 of 1	
	wait til more project EQ BLANKS arrive to start this batch.						
1607219-26A	Equip Blank		50	50	1.000	1 of 1	
1607239-16A	Equip Blank		50	50	1.000	1 of 1	
1607239-32A	Equip Blank		50	50	1.000	1 of 1	
1607256-13A	Equip Blank		50	50	1.000	1 of 1	
1607256-26A	Equip Blank		50	50	1.000	1 of 1	
1607256-27A	Equip Blank		50	50	1.000	1 of 1	
1607265-13A	Equip Blank		50	50	1.000	1 of 1	
1607265-26A	Equip Blank		50	50	1.000	1 of 1	
1607294-13A	Equip Blank		50	50	1.000	1 of 1	
1607294-24A	Equip Blank		50	50	1.000	1 of 1	
1607294-37A	Equip Blank		50	50	1.000	1 of 1	
1607294-50A	Equip Blank		50	50	1.000	1 of 1	
1607294-63A	Equip Blank		50	50	1.000	1 of 1	
1607294-76A	Equip Blank		50	50	1.000	1 of 1	
1607314-07A	Equip Blank		50	50	1.000	1 of 1	
1607317-13A	Equip Blank		50	50	1.000	1 of 1	
1607317-26A	Equip Blank		50	50	1.000	1 of 1	
1607337-13A	Aqueous		50	50	1.000	1 of 1	
1607337-26A	Aqueous		50	50	1.000	1 of 1	
1607337-26A PDS	Aqueous		50	50	1.000	of	
1607337-26A SD	Aqueous		50	50	1.000	of	
LCS-76687	Aqueous		50	50	1.000	of	
LCSD-76687	Aqueous		50	50	1.000	of	
MB-76687	Aqueous		50	50	1.000	of	

Number	Reagent Name	Amt	Units	Exp. Da
10056	Digestion Vessels	1	ml	02/10/2026
10399	Nitric Acid (Trace Metal Grade)	1	ml	05/24/2026
10400	Hydrochloric Acid (trace metal grade)	1	ml	05/24/2026

Spk ID	Spike Name	SampType	Amt (mL or g)	Exp. Date
MET-150914-10	AL PRIMARY STD 1000 PPM	LCS/MS/MSD	0.25	10/01/2016
MET-150914-9	FE PRIMARY STD 1000 PPM	LCS/MS/MSD	0.25	10/01/2016
MET-SPIKE-160701-3	2500 PPM NATURALS SPIKE	LCS/MS/MSD	0.1	09/29/2016
MET-SPIKE-160715-4B	50 PPM Sb+Ag CAL	LCS/MS/MSD	0.2	10/13/2016
MET-SPIKE-160715-5B	50 PPM Custom+Sn,Ti,B,Mo,Sr CAL	LCS/MS/MSD	0.2	10/13/2016

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By Janice Whitt at 2:24:21 PM, 8/10/2016

MECHANICAL VOLUMETRIC PIPETTE VOLUME DAILY CHECK - DOD QSM 5.0

ANALYST:	RO	**BALANCE #:**	30	
TEST DATE:	08/09/2016	**Water is at Room Temperatue (70-73°F) / (21-23°C)**		
PIPETTER LAB ID:	See Below	**WATER TEMP (°C):**	**21-23°C**	
TEST VOLUME:	See Below	**WATER DENSITY:**	**0.998**	**(0.9980-0.9976)**

REFERENCE:	DoD QSM 5.0
# of REPLICATES:	3
LABWARE TYPE:	MECHANICAL VOLUMETRIC PIPETTE
FREQUENCY:	DAILY BEFORE USE
MEAN CRITERIA:	± 2% OF NOMINAL VOLUME (VOLUME OF USE/TEST VOLUME)
RSD CRITERIA:	< 1% OF NOMINAL VOLUME (BASED ON MINIMUM OF 3 REPLICATE MEASUREMENTS)

1) RECORD ROOM AND WATER TEMPERATURE
2) TARE VESSEL ON BALANCE. ADD TEST VOLUME.
3) WEIGH 3 REPLICATES AT THE TEST VOLUME.
4) DETERMINE TOTAL WT.
5) CALCULATE VOLUME OF H2O AT °C (in mL)

% TEST VOL = Volume of H2O at °C/Test Volume * 100

%RSD = STDEV (Mean Volume)/AVERAGE (Mean Volume) *100

VOLUME OF H2O AT °C = TOTAL WT * WATER DENSITY

					BIAS	PRECISION
PIPETTE ID: P-31	**TEST VOLUME (mL)**	**TOTAL WT (g)**	**Volume of H_2O at °C**	**% TEST VOL (98-102%)**	**MEAN CRITERIA (± 2%)**	**% RSD Calculated**
1	4.00	3.9957	3.9877	99.69	PASS	RSD MUST BE ≤ 1% OF TEST VOLUME VALUE
2		4.0006	3.9926	99.81		
3		4.0002	3.9922	99.80		
AVERAGE (MEAN)		**3.999**	**3.991**	**99.77**		**0.068**
						PASS

PIPETTE ID: P-21	**TEST VOLUME (mL)**	**TOTAL WT (g)**	**Volume of H_2O at °C**	**% TEST VOL (98-102%)**	**MEAN CRITERIA (± 2%)**	**% RSD Calculated**
1	1.00	0.9962	0.9942	99.42	PASS	RSD MUST BE ≤ 1% OF TEST VOLUME VALUE
2		0.9969	0.9949	99.49		
3		0.9970	0.9950	99.50		
AVERAGE (MEAN)		**0.997**	**0.995**	**99.47**		**0.044**
						PASS

PIPETTE ID: P-39	**TEST VOLUME (mL)**	**TOTAL WT (g)**	**Volume of H_2O at °C**	**% TEST VOL (98-102%)**	**MEAN CRITERIA (± 2%)**	**% RSD Calculated**
1	0.500	0.5031	0.5021	100.42	PASS	RSD MUST BE ≤ 1% OF TEST VOLUME VALUE
2		0.5007	0.4997	99.94		
3		0.5000	0.4990	99.80		
AVERAGE (MEAN)		**0.501**	**0.500**	**100.05**		**0.324**
						PASS

8/9/16

Analyst / Date

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By Janice Whitt at 2:24:29 PM, 8/10/2016

Review and Approved / Date

Calibration Summary Report

Instrument: ICPMS3
Current Method: C:\ICPCHEM\1\METHODS\DHL_3Fe.M
Calibration: C:\ICPCHEM\1\CALIB\DHL_3FE.c
Last Update: Aug 09 2016 01:04 pm
Cal Type: Y=aX+[blank]

Standard	Date Acquired	File
BLANK STD 1	Aug 9 2016 12:19 pm	c:\icpchem\1\data\16h09l01.b\006calb.d\
L2-160809	Aug 9 2016 12:25 pm	c:\icpchem\1\data\16h09l01.b\007cals.d\
L-160809	Aug 9 2016 12:31 pm	c:\icpchem\1\data\16h09l01.b\008cals.d\
10X-160809	Aug 9 2016 12:37 pm	c:\icpchem\1\data\16h09l01.b\009cals.d\
5X-160809	Aug 9 2016 12:43 pm	c:\icpchem\1\data\16h09l01.b\010cals.d\
2X-160809	Aug 9 2016 12:49 pm	c:\icpchem\1\data\16h09l01.b\011cals.d\

Element Name	Corr Coef	Coef A	Coef B	Lvl 2	Lvl 6	Lvl 7	L7 %R	Lvl 8	L8 %R
Li	1.0000	0.268	0.01985	0.99	249	499		2000	
Be	1.0000	0.08936	0.002333	0.99	249	500	100%	--------	######
B	1.0000	0.07365	0.1211	0.95	253	515	103%	1,996	100%
Na	0.9998	0.3335	28.74	19.01	5,319	10,360	104%	24,790	99%
Mg	0.9997	0.1475	0.5455	20.73	5,030	10,510	105%	24,790	99%
Al	1.0000	0.03438	0.4037	18.43	5,019	9,994	100%	--------	######
K	0.9999	0.07325	5.923	20.58	4,926	9,747	97%	25,120	100%
Ca	1.0000	0.008733	0.4669	16.00	5,206	10,090	101%	24,920	100%
Ti	1.0000	0.03017	0.002252	1.06	246	490	98%	2,003	100%
V	1.0000	1.245	0.2631	0.98	248	493	99%	2,002	100%
Cr	1.0000	1.669	0.2947	1.03	253	502	100%	1,999	100%
Mn	1.0000	0.6497	0.07648	1.05	248	488	98%	2,003	100%
Fe	1.0000	2.273	16.06	21.37	4,997	9,989	100%	--------	######
Co	0.9999	5.267	0.1233	1.02	258	530	106%	1,991	100%
Ni	1.0000	1.567	0.1314	1.05	254	500	100%	1,999	100%
Cu	0.9999	4.208	0.5701	1.10	261	525	105%	1,992	100%
Zn	0.9999	0.4055	0.1696	1.03	265	519	104%	1,993	100%
As	1.0000	0.2296	0.1832	1.12	254	505	101%	1,998	100%
Se	1.0000	0.01281	0.009769	1.02	257	508	102%	1,997	100%
Sr	1.0000	0.338	0.06304	0.95	249	488	98%	2,003	100%
Mo	0.9997	0.06146	0.00307	0.97	241	506	101%	--------	######
Ag	0.9999	0.1534	0.002437	1.02	255	498	100%	--------	######
Cd	1.0000	0.0328	0.001133	0.95	248	492	98%	2,002	100%
Sn	1.0000	0.08901	0.008757	0.98	247	507	101%	1,999	100%
Sb	0.9999	0.1054	0.002497	1.00	245	503	101%	--------	######
Ba	1.0000	0.04162	0.002829	0.95	242	486	97%	2,005	100%
Tl	1.0000	0.3276	0.008287	0.94	254	504	101%	1,999	100%
Pb	1.0000	0.4441	0.02947	0.95	251	509	102%	1,998	100%

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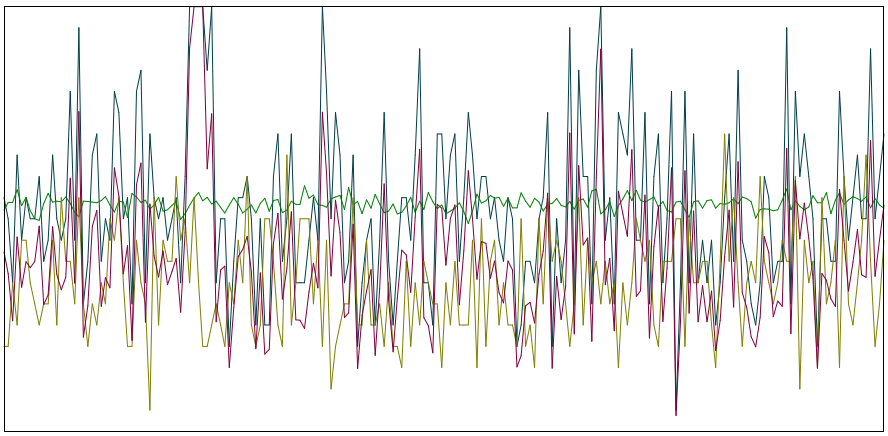
By Janice Whitt at 2:24:38 PM, 8/10/2016

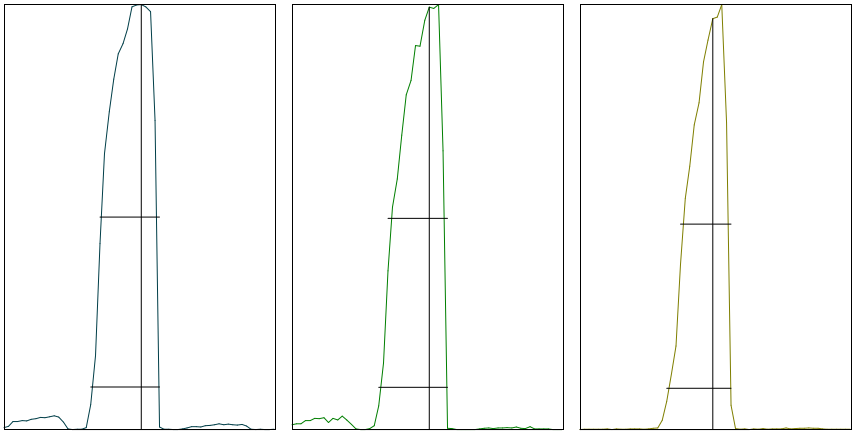
Tune Report

Tune File : He.U
Comment :



Integration Time:	0.1000 sec	
Sampling Period:	0.3100 sec	
n:	200	
Oxide:	156/140	0.306%
Doubly Charged:	70/140	2.638%

m/z	Range	Count	Mean	RSD%	Background
51	20	14.0	10.9	46.06	1.60
59	5,000	2628.0	2678.1	2.98	1.10
75	20	9.0	7.0	35.60	1.00
51/59	1	0.533%	0.409%	45.59	



m/z:	59	89	205
Height:	2,706	1,269	4,406
Axis:	59.05	89.05	205.00
W-50%:	0.65	0.65	0.55
W-10%:	0.7500	0.7500	0.700

Integration Time:	0.1000 sec
Acquisition Time:	22.5600 sec

Y axis : Linear

Generated : Aug 09, 2016 11:04:34
Printed : Aug 09, 2016 11:04:36

Tune Report

Tune File : He.U
Comment :

Tuning Parameters

===Plasma Condition===				===Ion Lenses===				===Q-Pole Parameters===		
RF Power	:	1600	W	Extract 1	:	0	V	AMU Gain	:	124
RF Matching	:	1.6	V	Extract 2	:	-150	V	AMU Offset	:	120
Smpl Depth	:	9	mm	Omega Bias-ce	:	-20	V	Axis Gain	:	0.9993
Torch-H	:	0	mm	Omega Lens-ce	:	0	V	Axis Offset	:	-0.03
Torch-V	:	0.8	mm	Cell Entrance	:	-40	V	QP Bias	:	-14 V
Carrier Gas	:	1.2	L/min	QP Focus	:	-10	V			
Makeup Gas	:	0	L/min	Cell Exit	:	-40	V	===Detector Parameters===		
Optional Gas	:	---	%					Discriminator	:	8 mV
Nebulizer Pump	:	0.1	rps	===Octopole Parameters===				Analog HV	:	1750 V
Sample Pump	:	---	rps	OctP RF	:	170	V	Pulse HV	:	1520 V
S/C Temp	:	2	degC	OctP Bias	:	-16	V			

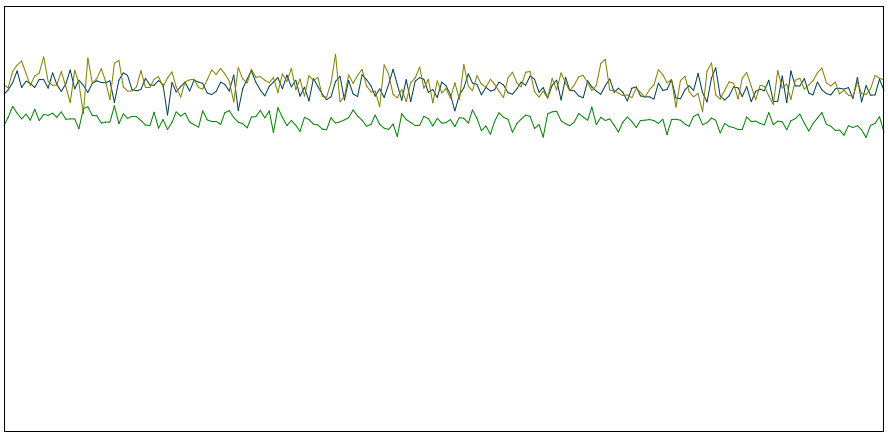
===Reaction Cell===

Reaction Mode	:	ON								
H2 Gas	:	0	mL/min	He Gas	:	4.8	mL/min	Optional Gas	:	--- %

Generated : Aug 09, 2016 11:04:34
Printed : Aug 09, 2016 11:04:38

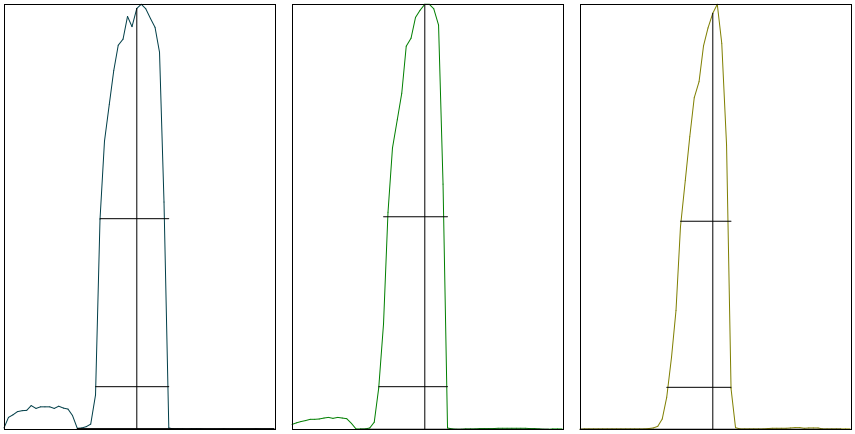
Tune Report

Tune File : nogas.u
Comment :



Integration Time:	0.1000 sec	
Sampling Period:	0.8200 sec	
n:	200	
Oxide:	156/140	1.036%
Doubly Charged:	70/140	3.195%

m/z	Range	Count	Mean	RSD%	Background
7	10,000	8026.0	8085.8	2.44	4.20
89	20,000	14074.0	14604.4	2.06	7.20
205	10,000	8272.0	8182.5	3.16	16.80
156/140	2	0.948%	1.060%	9.87	
70/140	5	3.253%	3.102%	11.05	
63	20,000	10979.0	11198.9	2.42	5.30
23	100,000	69620.0	61786.5	11.40	4.40



m/z:	7	89	205
Height:	8,017	14,600	8,176
Axis:	7.00	89.00	205.00
W-50%:	0.75	0.70	0.55
W-10%:	0.800	0.7500	0.700

Integration Time:	0.1000 sec
Acquisition Time:	22.7600 sec

Y axis : Linear

Generated : Aug 09, 2016 10:45:01
Printed : Aug 09, 2016 10:45:03

Tune Report

Tune File : nogas.u
Comment :

Tuning Parameters

===Plasma Condition===				===Ion Lenses===				===Q-Pole Parameters===			
RF Power	:	1600	W	Extract 1	:	0	V	AMU Gain	:	124	
RF Matching	:	1.6	V	Extract 2	:	-150	V	AMU Offset	:	120	
Smpl Depth	:	9	mm	Omega Bias-ce	:	-22	V	Axis Gain	:	0.9993	
Torch-H	:	0	mm	Omega Lens-ce	:	-1.4	V	Axis Offset	:	-0.03	
Torch-V	:	0.8	mm	Cell Entrance	:	-26	V	QP Bias	:	-3	V
Carrier Gas	:	1.2	L/min	QP Focus	:	0	V				
Makeup Gas	:	0	L/min	Cell Exit	:	-40	V	===Detector Parameters===			
Optional Gas	:	---	%					Discriminator	:	8	mV
Nebulizer Pump	:	0.1	rps	===Octopole Parameters===				Analog HV	:	1750	V
Sample Pump	:	---	rps	OctP RF	:	170	V	Pulse HV	:	1520	V
S/C Temp	:	2	degC	OctP Bias	:	-6	V				

===Reaction Cell===

Reaction Mode	:	OFF									
H2 Gas	:	0	mL/min	He Gas	:	0	mL/min	Optional Gas	:	---	%

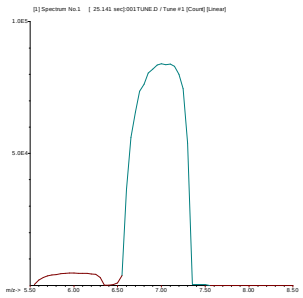
Generated : Aug 09, 2016 10:45:01
Printed : Aug 09, 2016 10:45:05

6020 QC Tune Report

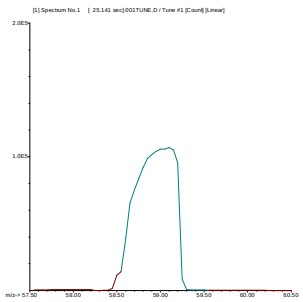
Data File: C:\ICPCHEM\1\DATA\16H09l00.B\001TUNE.D
Date Acquired: Aug 9 2016 11:24 am
Acq. Method: TN6020.M
Operator: KL
Sample Name: TUNE CHECK
Misc Info:
Vial Number: 1301
Current Method: C:\ICPCHEM\1\METHODS\TN6020.M

RSD (%)

Element	Actual	Required	Flag
7 Li	2.25	5.00	
59 Co	2.48	5.00	
115 In	2.60	5.00	
205 Tl	2.47	5.00	



7 Li
Mass Calib.
Actual: 7.05
Required: 6.90 - 7.10
Flag:
Peak Width
Actual: 0.70
Required: 0.90
Flag:



59 Co
Mass Calib.
Actual: 59.05
Required: 58.90 - 59.10
Flag:
Peak Width
Actual: 0.60
Required: 0.90
Flag:

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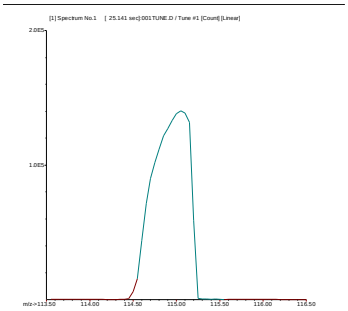


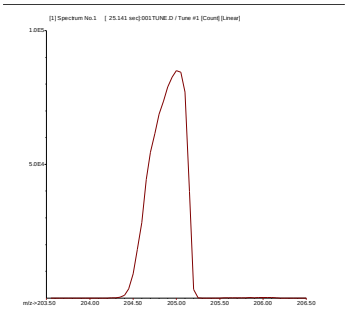
115 In

Mass Calib.

Actual:	115.05	
Required:	114.90 -	115.10
Flag:		

Peak Width

Actual:	0.60
Required:	0.90
Flag:	



205 Tl

Mass Calib.

Actual:	205.00	
Required:	204.90 -	205.10
Flag:		

Peak Width

Actual:	0.60
Required:	0.90
Flag:	

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By Janice Whitt at 2:24:54 PM, 8/10/2016

P/A Factor Tuning Report

Acquired:Aug 9 2016 11:20 am

Mass[amu]	Element	P/A Factor
6	Li	0.063716
23	Na	0.078069
24	Mg	0.081357
27	Al	0.083901
39	K	0.084057
44	Ca	Sensitivity too low
45	Sc	0.085164
47	Ti	Sensitivity too low
51	V	0.087056
52	Cr	0.089224
55	Mn	0.090623
59	Co	0.093388
60	Ni	0.094882
63	Cu	0.096643
66	Zn	0.096211
72	Ge	0.095488
75	As	0.094779
78	Se	Sensitivity too low
88	Sr	0.095797
95	Mo	0.094955
106	(Cd)	0.099887
107	Ag	Sensitivity too low
108	(Cd)	0.100044
111	Cd	0.100780
115	In	0.100761
118	Sn	0.100418
121	Sb	0.100203
137	Ba	Sensitivity too low
205	Tl	0.107503
206	(Pb)	0.107327
207	(Pb)	0.107559
208	Pb	0.107816
209	Bi	0.107471
238		0.107352

===Detector Parameters===
Discriminator: 8.0 mV
Analog HV: 1750 V
Pulse HV: 1520 V

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By Janice Whitt at 2:25:00 PM, 8/10/2016

Calibration Blank QC Report

Acq. Method: DHL_3Fe.M Sample Name: BLANK STD 1
Operator: KL Instrument: ICPMS3
Last Cal. Update: Aug 09 2016 12:23 pm
Date Acquired: Aug 9 2016 12:19 pm

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)
6	Li	2	---	76.78	P	19.44	25.32
7	Li	2	45	635.60	P	13.88	2.18
9	Be	2	45	74.45	P	30.06	40.38
11	B	2	45	3880.74	P	124.70	3.21
23	Na	1	45	22714.67	P	247.20	1.09
24	Mg	1	45	431.14	P	27.15	6.30
27	Al	1	45	319.12	P	13.35	4.18
39	K	1	45	4681.08	P	182.30	3.89
44	Ca	2	45	14942.25	P	783.20	5.24
45	Sc	1	---	158070.20	P	400.30	0.25
45	Sc	2	---	6406945.00	A	148100.00	2.31
47	Ti	1	45	1.78	P	1.54	86.62
51	V	1	45	208.01	P	24.44	11.75
51	V	2	---		P		
52	Cr	1	45	232.89	P	13.88	5.96
55	Mn	1	45	60.45	P	5.05	8.35
56	Fe	1	72	7118.21	P	361.20	5.07
59	Co	1	72	54.67	P	2.31	4.22
60	Ni	1	72	58.22	P	5.55	9.53
60	Ni	2	---		P		
63	Cu	1	72	252.45	P	45.26	17.93
63	Cu	2	---		P		
66	Zn	1	72	75.11	P	8.15	10.85
66	Zn	2	---		P		
72	Ge	1	---	88651.82	P	776.40	0.88
72	Ge	2	---		A		
75	As	1	72	81.19	P	4.56	5.62
78	Se	1	72	4.33	P	0.73	16.81
88	Sr	2	###	2327.00	P	180.20	7.74
95	Mo	2	###	113.34	P	15.28	13.48
107	Ag	2	###	90.00	P	6.67	7.41
111	Cd	2	###	41.74	P	22.60	54.14
115	In	2	---	7384352.00	A	47310.00	0.64
118	Sn	2	###	323.35	P	16.67	5.16
121	Sb	2	###	92.23	P	7.70	8.35
137	Ba	2	###	104.45	P	22.20	21.25
205	Tl	2	###	215.57	P	21.17	9.82
208	Pb	2	###	766.71	P	129.90	16.94
209	Bi	2	---	5202967.00	A	16760.00	0.32

Calibration Standard QC Report

Acq. Method: DHL_3Fe.M Sample Name: L2-160809
Operator: KL Instrument: ICPMS3
Date Acquired: Aug 9 2016 12:25 pm
Last Cal. Update: Aug 09 2016 12:23 pm

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)	Flag
6	Li	2	---	-276.34	P	37.83	13.69	ISFail
7	Li	2	45	9129.18	P	280.10	3.07	
9	Be	2	45	2910.46	P	77.69	2.67	
11	B	2	45	6155.09	P	170.80	2.77	
23	Na	1	45	28183.59	P	322.20	1.14	
24	Mg	1	45	2894.90	P	138.50	4.78	
27	Al	1	45	833.38	P	29.25	3.51	
39	K	1	45	5969.45	P	193.70	3.24	
44	Ca	2	45	19511.07	P	2212.00	11.34	
45	Sc	1	---	160684.70	P	2314.00	1.44	
45	Sc	2	---	6429131.00	A	68010.00	1.06	
47	Ti	1	45	27.56	P	1.54	5.59	
51	V	1	45	1194.74	P	39.62	3.32	
51	V	2	---		P			
52	Cr	1	45	1623.24	P	14.26	0.88	
55	Mn	1	45	608.03	P	25.44	4.18	
56	Fe	1	72	28900.35	P	2962.00	10.25	
59	Co	1	72	2465.62	P	87.97	3.57	
60	Ni	1	72	796.93	P	55.31	6.94	
60	Ni	2	---		P			
63	Cu	1	72	2316.25	P	46.28	2.00	
63	Cu	2	---		P			
66	Zn	1	72	261.79	P	17.71	6.77	
66	Zn	2	---		P			
72	Ge	1	---	89405.56	P	917.80	1.03	
72	Ge	2	---		A			
75	As	1	72	197.11	P	4.29	2.18	
78	Se	1	72	10.22	P	0.51	4.98	
88	Sr	2	115	14278.91	P	588.80	4.12	
95	Mo	2	115	2323.65	P	64.30	2.77	
107	Ag	2	115	5893.90	P	231.20	3.92	
111	Cd	2	115	1197.38	P	58.34	4.87	
115	In	2	---	7443953.00	A	81490.00	1.09	
118	Sn	2	115	3580.69	P	47.04	1.31	
121	Sb	2	115	4014.18	P	113.60	2.83	
137	Ba	2	115	1577.95	P	66.78	4.23	
205	Tl	2	209	8330.07	P	211.40	2.54	
208	Pb	2	209	11870.80	P	191.10	1.61	
209	Bi	2	---	5250363.00	A	48340.00	0.92	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-276.34	13.69	76.78	-359.9	70 - 120	ISFail
45	Sc	1	160684.72	1.44	158070.19	101.7	70 - 120	
45	Sc	2	6429130.50	1.06	6406944.50	100.3	70 - 120	
72	Ge	1	89405.56	1.03	88651.82	100.9	70 - 120	
115	In	2	7443953.00	1.09	7384352.50	100.8	70 - 120	
209	Bi	2	5250363.50	0.92	5202967.00	100.9	70 - 120	

Calibration Standard QC Report

Acq. Method: DHL_3Fe.M Sample Name: L-160809
Operator: KL Instrument: ICPMS3
Date Acquired: Aug 9 2016 12:31 pm
Last Cal. Update: Aug 09 2016 12:29 pm

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)	Flag
6	Li	2	---	-3881.67	P	60.33	1.55	ISFail
7	Li	2	45	86910.47	P	940.50	1.08	Fail
9	Be	2	45	29447.30	P	565.20	1.92	Fail
11	B	2	45	27210.25	P	574.80	2.11	Fail
23	Na	1	45	78668.42	P	825.80	1.05	Fail
24	Mg	1	45	25039.14	P	435.10	1.74	Fail
27	Al	1	45	5952.62	P	89.59	1.51	Fail
39	K	1	45	16334.60	P	268.70	1.65	Fail
44	Ca	2	45	70195.96	P	3159.00	4.50	Fail
45	Sc	1	---	161571.00	P	1929.00	1.19	
45	Sc	2	---	6453811.00	A	142600.00	2.21	
47	Ti	1	45	260.01	P	35.50	13.65	Fail
51	V	1	45	10266.17	P	219.20	2.14	Fail
51	V	2	---		P			
52	Cr	1	45	14166.06	P	190.20	1.34	Fail
55	Mn	1	45	5238.97	P	39.95	0.76	Fail
56	Fe	1	72	213754.41	P	1903.00	0.89	Fail
59	Co	1	72	24702.73	P	305.40	1.24	
60	Ni	1	72	7330.29	P	214.90	2.93	Fail
60	Ni	2	---		P			
63	Cu	1	72	20624.14	P	340.20	1.65	Fail
63	Cu	2	---		P			
66	Zn	1	72	2102.88	P	42.78	2.03	Fail
66	Zn	2	---		P			
72	Ge	1	---	90222.60	P	954.20	1.06	
72	Ge	2	---		A			
75	As	1	72	1138.61	P	9.52	0.84	Fail
78	Se	1	72	66.48	P	5.04	7.58	Fail
88	Sr	2	115	124450.40	P	2670.00	2.15	Fail
95	Mo	2	115	22071.00	P	419.80	1.90	Fail
107	Ag	2	115	57970.12	P	1503.00	2.59	Fail
111	Cd	2	115	12490.16	P	478.50	3.83	Fail
115	In	2	---	7406828.00	A	96950.00	1.31	
118	Sn	2	115	32855.11	P	416.50	1.27	Fail
121	Sb	2	115	38465.25	P	1177.00	3.06	Fail
137	Ba	2	115	15112.49	P	550.50	3.64	Fail
205	Tl	2	209	83036.09	P	850.40	1.02	Fail
208	Pb	2	209	115560.00	P	1813.00	1.57	Fail
209	Bi	2	---	5219492.00	A	55050.00	1.05	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-3881.67	1.55	76.78	-5055.8	70 - 120	ISFail
45	Sc	1	161570.98	1.19	158070.19	102.2	70 - 120	
45	Sc	2	6453811.50	2.21	6406944.50	100.7	70 - 120	
72	Ge	1	90222.60	1.06	88651.82	101.8	70 - 120	
115	In	2	7406828.00	1.31	7384352.50	100.3	70 - 120	
209	Bi	2	5219491.50	1.05	5202967.00	100.3	70 - 120	

Calibration Standard QC Report

Acq. Method: DHL_3Fe.M Sample Name: 10X-160809
Operator: KL Instrument: ICPMS3
Date Acquired: Aug 9 2016 12:37 pm
Last Cal. Update: Aug 09 2016 12:35 pm

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)	Flag
6	Li	2	---	-19629.23	P	383.20	1.95	ISFail
7	Li	2	45	432408.59	P	8261.00	1.91	Fail
9	Be	2	45	144443.50	P	2969.00	2.06	Fail
11	B	2	45	120068.30	P	1757.00	1.46	Fail
23	Na	1	45	295790.41	P	1604.00	0.54	Fail
24	Mg	1	45	119897.70	P	957.30	0.80	Fail
27	Al	1	45	27945.11	P	356.30	1.28	Fail
39	K	1	45	63314.89	P	311.10	0.49	Fail
44	Ca	2	45	290460.09	P	9086.00	3.13	Fail
45	Sc	1	---	163871.50	P	1400.00	0.85	
45	Sc	2	---	6441649.00	A	124900.00	1.94	
47	Ti	1	45	1160.08	P	42.92	3.70	Fail
51	V	1	45	50469.89	P	868.10	1.72	Fail
51	V	2	---		P			
52	Cr	1	45	68834.85	P	602.80	0.88	Fail
55	Mn	1	45	26142.08	P	417.90	1.60	Fail
56	Fe	1	72	1069612.00	A	24000.00	2.24	Fail
59	Co	1	72	121947.00	P	1160.00	0.95	
60	Ni	1	72	35924.11	P	658.70	1.83	
60	Ni	2	---		P			
63	Cu	1	72	100456.60	P	498.00	0.50	Fail
63	Cu	2	---		P			
66	Zn	1	72	9852.08	P	58.18	0.59	Fail
66	Zn	2	---		P			
72	Ge	1	---	90028.47	P	394.00	0.44	
72	Ge	2	---		A			
75	As	1	72	5389.93	P	49.54	0.92	Fail
78	Se	1	72	308.04	P	9.84	3.20	Fail
88	Sr	2	115	602337.50	P	12840.00	2.13	Fail
95	Mo	2	115	108354.30	P	2536.00	2.34	Fail
107	Ag	2	115	282736.09	P	5107.00	1.81	Fail
111	Cd	2	115	61328.21	P	1125.00	1.83	Fail
115	In	2	---	7387452.00	A	82820.00	1.12	
118	Sn	2	115	159923.91	P	2799.00	1.75	Fail
121	Sb	2	115	189023.00	P	4633.00	2.45	Fail
137	Ba	2	115	73661.36	P	1339.00	1.82	Fail
205	Tl	2	209	410096.00	P	4859.00	1.18	Fail
208	Pb	2	209	560275.31	P	9752.00	1.74	Fail
209	Bi	2	---	5195223.00	A	67090.00	1.29	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-19629.24	1.95	76.78	-25566.9	70 - 120	ISFail
45	Sc	1	163871.55	0.85	158070.19	103.7	70 - 120	
45	Sc	2	6441649.50	1.94	6406944.50	100.5	70 - 120	
72	Ge	1	90028.47	0.44	88651.82	101.6	70 - 120	
115	In	2	7387452.50	1.12	7384352.50	100.0	70 - 120	
209	Bi	2	5195223.50	1.29	5202967.00	99.9	70 - 120	

Calibration Standard QC Report

Acq. Method: DHL_3Fe.M Sample Name: 5X-160809
Operator: KL Instrument: ICPMS3
Date Acquired: Aug 9 2016 12:43 pm
Last Cal. Update: Aug 09 2016 12:41 pm

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)	Flag
6	Li	2	---	-39450.97	P	848.30	2.15	ISFail
7	Li	2	45	859389.31	A	4295.00	0.50	Fail
9	Be	2	45	288149.81	P	5638.00	1.96	Fail
11	B	2	45	237918.00	P	3433.00	1.44	Fail
23	Na	1	45	568962.38	P	7291.00	1.28	Fail
24	Mg	1	45	239276.80	P	2504.00	1.05	Fail
27	Al	1	45	55187.29	P	557.70	1.01	Fail
39	K	1	45	120214.40	P	144.40	0.12	Fail
44	Ca	2	45	556133.69	P	12600.00	2.27	Fail
45	Sc	1	---	160100.41	P	785.10	0.49	
45	Sc	2	---	6261295.00	A	110100.00	1.76	
47	Ti	1	45	2330.48	P	68.35	2.93	
51	V	1	45	98896.30	P	1086.00	1.10	Fail
51	V	2	---		A			
52	Cr	1	45	134880.20	P	1476.00	1.09	Fail
55	Mn	1	45	51629.94	P	259.30	0.50	
56	Fe	1	72	2048862.00	A	26700.00	1.30	Fail
59	Co	1	72	240143.91	P	3156.00	1.31	
60	Ni	1	72	70495.25	P	308.50	0.44	
60	Ni	2	---		P			
63	Cu	1	72	195537.50	P	2292.00	1.17	
63	Cu	2	---		P			
66	Zn	1	72	19348.32	P	160.80	0.83	Fail
66	Zn	2	---		P			
72	Ge	1	---	88032.42	P	653.70	0.74	
72	Ge	2	---		A			
75	As	1	72	10479.46	P	46.78	0.45	Fail
78	Se	1	72	601.65	P	3.54	0.59	Fail
88	Sr	2	115	1235870.00	A	19360.00	1.57	Fail
95	Mo	2	115	210659.70	P	2732.00	1.30	Fail
107	Ag	2	115	551580.50	P	10460.00	1.90	Fail
111	Cd	2	115	117569.70	P	2118.00	1.80	Fail
115	In	2	---	7231429.00	A	105800.00	1.46	
118	Sn	2	115	314553.91	P	5363.00	1.71	Fail
121	Sb	2	115	369819.19	P	6133.00	1.66	Fail
137	Ba	2	115	143935.50	P	2716.00	1.89	Fail
205	Tl	2	209	810074.38	P	14910.00	1.84	Fail
208	Pb	2	209	1102986.00	P	19000.00	1.72	Fail
209	Bi	2	---	5066186.00	A	31410.00	0.62	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-39450.97	2.15	76.78	-51384.5	70 - 120	ISFail
45	Sc	1	160100.36	0.49	158070.19	101.3	70 - 120	
45	Sc	2	6261294.50	1.76	6406944.50	97.7	70 - 120	
72	Ge	1	88032.41	0.74	88651.82	99.3	70 - 120	
115	In	2	7231429.00	1.46	7384352.50	97.9	70 - 120	
209	Bi	2	5066186.00	0.62	5202967.00	97.4	70 - 120	

Calibration Standard QC Report

Acq. Method: DHL_3Fe.M Sample Name: 2X-160809
Operator: KL Instrument: ICPMS3
Date Acquired: Aug 9 2016 12:49 pm
Last Cal. Update: Aug 09 2016 12:47 pm

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)	Flag
6	Li	2	---	-92547.78	P	610.90	0.66	ISFail
7	Li	2	45	2055320.00	A	6991.00	0.34	Fail
9	Be	2	45	683394.69	A	4914.00	0.72	Fail
11	B	2	45	576713.50	P	2557.00	0.44	Fail
23	Na	1	45	1404880.00	A	14730.00	1.05	Fail
24	Mg	1	45	578383.88	P	6434.00	1.11	
27	Al	1	45	134799.70	P	2720.00	2.02	Fail
39	K	1	45	285831.19	P	781.30	0.27	Fail
44	Ca	2	45	1412857.00	A	25870.00	1.83	Fail
45	Sc	1	---	155861.80	P	491.20	0.32	
45	Sc	2	---	6152547.00	A	97850.00	1.59	
47	Ti	1	45	5794.77	P	204.00	3.52	
51	V	1	45	240871.30	P	1410.00	0.59	
51	V	2	---		A			
52	Cr	1	45	329345.00	P	2941.00	0.89	
55	Mn	1	45	125528.70	P	257.30	0.20	
56	Fe	1	72	4881959.00	A	31120.00	0.64	
59	Co	1	72	583012.50	P	6102.00	1.05	
60	Ni	1	72	171085.50	P	356.40	0.21	
60	Ni	2	---		P			
63	Cu	1	72	471235.19	P	1321.00	0.28	
63	Cu	2	---		A			
66	Zn	1	72	46169.71	P	361.90	0.78	
66	Zn	2	---		P			
72	Ge	1	---	85858.36	P	473.70	0.55	
72	Ge	2	---		A			
75	As	1	72	25145.85	P	42.53	0.17	Fail
78	Se	1	72	1414.53	P	7.55	0.53	Fail
88	Sr	2	115	2920739.00	A	29390.00	1.01	Fail
95	Mo	2	115	513910.31	P	6728.00	1.31	Fail
107	Ag	2	115	1360042.00	A	20930.00	1.54	Fail
111	Cd	2	115	282658.91	P	4566.00	1.62	Fail
115	In	2	---	6950477.00	A	79190.00	1.14	
118	Sn	2	115	763250.19	P	7455.00	0.98	Fail
121	Sb	2	115	897868.50	P	9308.00	1.04	Fail
137	Ba	2	115	350302.50	P	4136.00	1.18	Fail
205	Tl	2	209	2058289.00	A	35310.00	1.72	Fail
208	Pb	2	209	2754049.00	A	37450.00	1.36	Fail
209	Bi	2	---	4942278.00	A	58580.00	1.19	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-92547.78	0.66	76.78	-120542.6	70 - 120	ISFail
45	Sc	1	155861.84	0.32	158070.19	98.6	70 - 120	
45	Sc	2	6152547.50	1.59	6406944.50	96.0	70 - 120	
72	Ge	1	85858.37	0.55	88651.82	96.8	70 - 120	
115	In	2	6950477.50	1.14	7384352.50	94.1	70 - 120	
209	Bi	2	4942278.00	1.19	5202967.00	95.0	70 - 120	

Calibration Standard QC Report

Acq. Method: DHL_3Fe.M Sample Name: H-160809
Operator: KL Instrument: ICPMS3
Date Acquired: Aug 9 2016 12:55 pm
Last Cal. Update: Aug 09 2016 12:52 pm

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)	Flag
6	Li	2	---	-180102.91	P	1887.00	1.05	ISFail
7	Li	2	45	4028771.00	A	21070.00	0.52	Fail
9	Be	2	45	1346636.00	A	10300.00	0.76	Fail
11	B	2	45	1147521.00	A	18600.00	1.62	Fail
23	Na	1	45	2697100.00	A	7631.00	0.28	Fail
24	Mg	1	45	1199446.00	A	15020.00	1.25	
27	Al	1	45	266288.00	P	2957.00	1.11	
39	K	1	45	557212.69	P	4537.00	0.81	Fail
44	Ca	2	45	2670122.00	A	39330.00	1.47	Fail
45	Sc	1	---	154804.91	P	798.80	0.52	
45	Sc	2	---	6027486.00	A	99200.00	1.65	
47	Ti	1	45	11449.88	P	127.40	1.11	
51	V	1	45	474757.91	P	2110.00	0.44	
51	V	2	---		A			
52	Cr	1	45	648571.81	P	1651.00	0.25	
55	Mn	1	45	245434.30	P	883.90	0.36	
56	Fe	1	72	9536205.00	A	79560.00	0.83	
59	Co	1	72	1171404.00	A	11090.00	0.95	
60	Ni	1	72	329269.00	P	3471.00	1.05	
60	Ni	2	---		A			
63	Cu	1	72	927079.50	M	19060.00	2.06	
63	Cu	2	---		A			
66	Zn	1	72	88347.85	P	460.10	0.52	
66	Zn	2	---		P			
72	Ge	1	---	83956.57	P	181.70	0.22	
72	Ge	2	---		A			
75	As	1	72	48699.76	P	116.50	0.24	
78	Se	1	72	2737.60	P	10.85	0.40	
88	Sr	2	115	5612955.00	A	56370.00	1.00	Fail
95	Mo	2	115	1058171.00	A	4867.00	0.46	Fail
107	Ag	2	115	2596907.00	A	2732.00	0.11	Fail
111	Cd	2	115	549297.31	P	1150.00	0.21	Fail
115	In	2	---	6804297.00	A	14860.00	0.22	
118	Sn	2	115	1534882.00	A	13500.00	0.88	Fail
121	Sb	2	115	1803670.00	A	10380.00	0.58	Fail
137	Ba	2	115	687678.69	P	2013.00	0.29	Fail
205	Tl	2	209	4003026.00	A	37020.00	0.92	Fail
208	Pb	2	209	5483501.00	A	9428.00	0.17	Fail
209	Bi	2	---	4848076.00	A	33810.00	0.70	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-180102.91	1.05	76.78	-234582.3	70 - 120	ISFail
45	Sc	1	154804.94	0.52	158070.19	97.9	70 - 120	
45	Sc	2	6027486.00	1.65	6406944.50	94.1	70 - 120	
72	Ge	1	83956.57	0.22	88651.82	94.7	70 - 120	
115	In	2	6804297.50	0.22	7384352.50	92.1	70 - 120	
209	Bi	2	4848076.00	0.70	5202967.00	93.2	70 - 120	

Calibration Standard QC Report

Acq. Method: DHL_3Fe.M Sample Name: H2-160809
Operator: KL Instrument: ICPMS3
Date Acquired: Aug 9 2016 01:01 pm
Last Cal. Update: Aug 09 2016 12:58 pm

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)	Flag
6	Li	2	---	-695108.38	A	5548.00	0.80	ISFail
7	Li	2	45	16324680.00	A	45420.00	0.28	Fail
9	Be	2	45	5098597.00	A	45540.00	0.89	
11	B	2	45	4479131.00	A	27290.00	0.61	Fail
23	Na	1	45	6521873.00	A	60180.00	0.92	Fail
24	Mg	1	45	2874443.00	A	42430.00	1.48	
27	Al	1	45	2506.51	P	21.68	0.86	Fail
39	K	1	45	1451327.00	A	7604.00	0.52	Fail
44	Ca	2	45	6641747.00	A	83680.00	1.26	Fail
45	Sc	1	---	157244.80	P	431.30	0.27	
45	Sc	2	---	6089865.00	A	74730.00	1.23	
47	Ti	1	45	47519.80	P	854.10	1.80	
51	V	1	45	1959345.00	A	19960.00	1.02	
51	V	2	---		A			
52	Cr	1	45	2623501.00	A	40880.00	1.56	
55	Mn	1	45	1023403.00	A	19900.00	1.94	
56	Fe	1	72	16818.04	P	566.10	3.37	Fail
59	Co	1	72	4471216.00	A	68540.00	1.53	
60	Ni	1	72	1335689.00	A	16620.00	1.24	
60	Ni	2	---		A			
63	Cu	1	72	3573923.00	A	51580.00	1.44	
63	Cu	2	---		A			
66	Zn	1	72	344616.81	P	3985.00	1.16	
66	Zn	2	---		A			
72	Ge	1	---	85259.96	P	597.60	0.70	
72	Ge	2	---		A			
75	As	1	72	195626.80	P	2133.00	1.09	
78	Se	1	72	10908.70	P	95.50	0.88	
88	Sr	2	115	23456990.00	A	236000.00	1.01	Fail
95	Mo	2	115	4277989.00	A	26110.00	0.61	
107	Ag	2	115	1475.72	P	191.00	12.94	Fail
111	Cd	2	115	2274770.00	A	16520.00	0.73	
115	In	2	---	6927955.00	A	9047.00	0.13	
118	Sn	2	115	6163197.00	A	4526.00	0.07	Fail
121	Sb	2	115	2224.75	P	132.90	5.97	Fail
137	Ba	2	115	2890665.00	A	29900.00	1.03	Fail
205	Tl	2	209	15777200.00	A	100800.00	0.64	
208	Pb	2	209	21376310.00	A	153600.00	0.72	
209	Bi	2	---	4818865.00	A	41690.00	0.87	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-695108.44	0.80	76.78	-905371.9	70 - 120	ISFail
45	Sc	1	157244.86	0.27	158070.19	99.5	70 - 120	
45	Sc	2	6089865.50	1.23	6406944.50	95.1	70 - 120	
72	Ge	1	85259.96	0.70	88651.82	96.2	70 - 120	
115	In	2	6927955.50	0.13	7384352.50	93.8	70 - 120	
209	Bi	2	4818864.50	0.87	5202967.00	92.6	70 - 120	

ICSA QC Report

C:\ICPCHEM\1\DATA\16H09l01.B\016ICSA.D\016ICSA.D#

Date Acquired:	Aug 9 2016 01:18 pm	Sample Name:	**ICSA-160809**
Acq. Method:	DHL_3Fe.M	Misc Info:	ICSAICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 09 2016 01:04 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	RL S	RL Aq	Flag
7	Li	2	45	0.478	ppb	9.59	8.00	5.00	
9	Be	2	45	0.117	ppb	38.20	0.32	0.80	
11	B	2	45	8.638	ppb	3.46	30.00	30.00	
23	Na	1	45	101700.000	ppb	1.19	#######	#######	
24	Mg	1	45	89070.000	ppb	1.04	#######	#######	
27	Al	1	45	96290.000	ppb	0.44	#######	#######	
39	K	1	45	92830.000	ppb	0.95	#######	#######	
44	Ca	2	45	90970.000	ppb	2.83	#######	#######	
47	Ti	1	45	1967.000	ppb	0.21	10.00	10.00	
51	V	1	45	0.109	ppb	13.43	10.00	10.00	
52	Cr	1	45	0.894	ppb	4.88	8.00	5.00	
55	Mn	1	45	0.844	ppb	9.88	8.00	10.00	
56	Fe	1	72	92080.000	ppb	1.45	#######	#######	
59	Co	1	72	1.329	ppb	5.32	8.00	10.00	
60	Ni	1	72	0.485	ppb	11.46	8.00	10.00	
63	Cu	1	72	2.282	ppb	0.83	8.00	10.00	
66	Zn	1	72	2.100	ppb	1.97	10.00	5.00	
75	As	1	72	0.765	ppb	2.73	4.00	5.00	
78	Se	1	72	0.590	ppb	13.84	2.00	5.00	
88	Sr	2	115	1.237	ppb	5.49	10.00	10.00	
95	Mo	2	115	1909.000	ppb	2.87	8.00	5.00	
107	Ag	2	115	0.099	ppb	14.31	0.80	2.00	
111	Cd	2	115	0.197	ppb	22.45	1.20	1.00	
118	Sn	2	115	0.592	ppb	9.39	10.00	10.00	
121	Sb	2	115	0.145	ppb	7.64	4.00	2.50	
137	Ba	2	115	0.539	ppb	12.33	8.00	10.00	
205	Tl	2	209	0.265	ppb	18.78	4.00	1.50	
208	Pb	2	209	0.424	ppb	8.56	1.20	1.00	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	11.48	362.20	76.78	15.0	70 - 120	ISFail
45	Sc	1	148376.02	0.59	158070.19	93.9	70 - 120	
45	Sc	2	6156980.50	1.85	6406944.50	96.1	70 - 120	
72	Ge	1	80882.91	0.84	88651.82	91.2	70 - 120	
115	In	2	6870784.00	2.23	7384352.50	93.0	70 - 120	
209	Bi	2	4330707.50	1.99	5202967.00	83.2	70 - 120	

ICS-AB QC Report

C:\ICPCHEM\1\DATA\16H09l01.B\017ICSB.D\017ICSB.D#

Date Acquired:	Aug 9 2016 01:24 pm	Sample Name:	**ICSAB-160809**
Acq. Method:	DHL_3Fe.M	Misc Info:	ICSBICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 09 2016 01:04 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)			Flag
7	Li	2	45	0.40	ppb	2.58	---	80 -		120	
9	Be	2	45	0.03	ppb	8.03	---	80 -		120	
11	B	2	45	6.35	ppb	1.20	---	80 -		120	
23	Na	1	45	96960.00	ppb	0.63	100000.00	80 -		120	
24	Mg	1	45	90120.00	ppb	1.11	100000.00	80 -		120	
27	Al	1	45	93870.00	ppb	0.65	100000.00	80 -		120	
39	K	1	45	91490.00	ppb	0.58	100000.00	80 -		120	
44	Ca	2	45	91530.00	ppb	3.21	100000.00	80 -		120	
47	Ti	1	45	1935.00	ppb	1.62	---	80 -		120	
51	V	1	45	39.09	ppb	0.68	40.00	80 -		120	
52	Cr	1	45	20.74	ppb	1.41	20.00	80 -		120	
55	Mn	1	45	18.98	ppb	0.93	20.00	80 -		120	
56	Fe	1	72	92210.00	ppb	0.80	100000.00	80 -		120	
59	Co	1	72	39.88	ppb	0.42	40.00	80 -		120	
60	Ni	1	72	36.63	ppb	1.39	40.00	80 -		120	
63	Cu	1	72	20.22	ppb	0.75	20.00	80 -		120	
66	Zn	1	72	19.71	ppb	2.04	20.00	80 -		120	
75	As	1	72	19.81	ppb	0.30	20.00	80 -		120	
78	Se	1	72	18.75	ppb	2.32	20.00	80 -		120	
88	Sr	2	115	1.33	ppb	1.67	---	80 -		120	
95	Mo	2	115	1935.00	ppb	2.13	---	80 -		120	
107	Ag	2	115	17.74	ppb	2.73	20.00	80 -		120	
111	Cd	2	115	9.02	ppb	3.94	10.00	80 -		120	
118	Sn	2	115	0.55	ppb	2.97	---	80 -		120	
121	Sb	2	115	0.07	ppb	4.90	---	80 -		120	
137	Ba	2	115	0.45	ppb	15.68	---	80 -		120	
205	Tl	2	209	0.13	ppb	1.84	---	80 -		120	
208	Pb	2	209	0.35	ppb	3.71	---	80 -		120	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	39.32	24.84	76.78	51.2	70 -		120	ISFail
45	Sc	1	143697.27	0.32	158070.19	90.9	70 -		120	
45	Sc	2	6567728.50	2.23	6406944.50	102.5	70 -		120	
72	Ge	1	79282.91	0.67	88651.82	89.4	70 -		120	
115	In	2	7038518.00	2.36	7384352.50	95.3	70 -		120	
209	Bi	2	4336473.50	1.65	5202967.00	83.3	70 -		120	

CCV QC Report

C:\ICPCHEM\1\DATA\16H09l01.B\020ICV.D\020ICV.D#

Date Acquired:	Aug 9 2016 01:42 pm	Sample Name:	**ICV1-160809**
Acq. Method:	DHL_3Fe.M	Misc Info:	ICV ICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 09 2016 01:04 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	129.30	ppb	1.81	100.00	90 -	110	129.3	Fail
9	Be	2	45	114.40	ppb	1.63	100.00	90 -	110	114.4	Fail
11	B	2	45	109.80	ppb	0.44	100.00	90 -	110	109.8	
23	Na	1	45	2933.00	ppb	0.80	2500.00	90 -	110	117.3	Fail
24	Mg	1	45	2666.00	ppb	0.48	2500.00	90 -	110	106.6	
27	Al	1	45	2371.00	ppb	2.40	2500.00	90 -	110	94.8	
39	K	1	45	2496.00	ppb	1.03	2500.00	90 -	110	99.8	
44	Ca	2	45	2519.00	ppb	5.00	2500.00	90 -	110	100.8	
47	Ti	1	45	98.48	ppb	3.15	100.00	90 -	110	98.5	
51	V	1	45	104.90	ppb	0.63	100.00	90 -	110	104.9	
52	Cr	1	45	110.20	ppb	0.50	100.00	90 -	110	110.2	Fail
55	Mn	1	45	97.83	ppb	0.85	100.00	90 -	110	97.8	
56	Fe	1	72	2550.00	ppb	0.86	2500.00	90 -	110	102.0	
59	Co	1	72	106.90	ppb	0.39	100.00	90 -	110	106.9	
60	Ni	1	72	105.20	ppb	0.60	100.00	90 -	110	105.2	
63	Cu	1	72	107.50	ppb	0.85	100.00	90 -	110	107.5	
66	Zn	1	72	103.10	ppb	0.74	100.00	90 -	110	103.1	
75	As	1	72	100.40	ppb	0.56	100.00	90 -	110	100.4	
78	Se	1	72	95.57	ppb	1.19	100.00	90 -	110	95.6	
88	Sr	2	115	112.40	ppb	1.71	100.00	90 -	110	112.4	Fail
95	Mo	2	115	98.76	ppb	1.83	100.00	90 -	110	98.8	
107	Ag	2	115	101.40	ppb	2.11	100.00	90 -	110	101.4	
111	Cd	2	115	98.66	ppb	2.13	100.00	90 -	110	98.7	
118	Sn	2	115	98.42	ppb	1.97	100.00	90 -	110	98.4	
121	Sb	2	115	98.00	ppb	1.85	100.00	90 -	110	98.0	
137	Ba	2	115	95.40	ppb	1.88	100.00	90 -	110	95.4	
205	Tl	2	209	96.22	ppb	1.09	100.00	90 -	110	96.2	
208	Pb	2	209	96.59	ppb	1.93	100.00	90 -	110	96.6	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	-32746.34	1.14	76.78	-42651.8	70 -	120		ISFail
45	Sc	1	151304.55	0.27	158070.19	95.7	70 -	120		
45	Sc	2	7310796.00	1.80	6406944.50	114.1	70 -	120		
72	Ge	1	86412.31	0.52	88651.82	97.5	70 -	120		
115	In	2	7162118.00	1.91	7384352.50	97.0	70 -	120		
209	Bi	2	4628968.50	1.21	5202967.00	89.0	70 -	120		

ICB QC Report

C:\ICPCHEM\1\DATA\16H09l01.B\021_ICB.D\021_ICB.D#

Date Acquired:	Aug 9 2016 01:48 pm	Sample Name:	**ICB1-160809**
Acq. Method:	DHL_3Fe.M	Misc Info:	ICB ICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 09 2016 01:04 pm	Instrument:	ICPMS3

QC Elements

Element				Conc.		RSD(%)	High Limit	Flag
7	Li	2	45	0.29	ppb	7.50	2.00	
9	Be	2	45	0.09	ppb	14.93	0.40	
11	B	2	45	4.74	ppb	3.28	10.00	
23	Na	1	45	11.32	ppb	2.07	50.00	
24	Mg	1	45	4.67	ppb	15.18	50.00	
27	Al	1	45	11.35	ppb	4.40	50.00	Failaq
39	K	1	45	9.77	ppb	1.38	50.00	
44	Ca	2	45	12.78	ppb	4.86	50.00	
47	Ti	1	45	0.21	ppb	52.92	4.00	
51	V	1	45	0.08	ppb	4.76	4.00	
52	Cr	1	45	0.13	ppb	4.27	2.00	
55	Mn	1	45	0.12	ppb	13.64	2.00	
56	Fe	1	72	3.53	ppb	8.32	50.00	
59	Co	1	72	0.09	ppb	13.04	2.00	
60	Ni	1	72	0.07	ppb	10.98	2.00	
63	Cu	1	72	0.14	ppb	8.26	2.00	
66	Zn	1	72	0.24	ppb	9.19	4.00	
75	As	1	72	0.21	ppb	2.42	2.00	
78	Se	1	72	-0.03	ppb	8.18	0.60	
88	Sr	2	115	0.26	ppb	4.89	4.00	
95	Mo	2	115	0.26	ppb	9.18	2.00	
107	Ag	2	115	0.06	ppb	7.48	0.40	
111	Cd	2	115	0.09	ppb	30.52	0.40	
118	Sn	2	115	0.20	ppb	2.23	20.00	
121	Sb	2	115	0.11	ppb	4.20	2.00	
137	Ba	2	115	0.11	ppb	12.13	2.00	
205	Tl	2	209	0.22	ppb	7.79	2.00	
208	Pb	2	209	0.12	ppb	7.88	0.40	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2 RHig	-12.64	######	76.78	-16.5	70 - 120	ISFail
45	Sc	1	154465.72	1.48	158070.19	97.7	70 - 120	
45	Sc	2	7434230.00	2.56	6406944.50	116.0	70 - 120	
72	Ge	1	88798.62	1.36	88651.82	100.2	70 - 120	
115	In	2	7172536.50	2.37	7384352.50	97.1	70 - 120	
209	Bi	2	4672709.00	1.72	5202967.00	89.8	70 - 120	

CCV QC Report

C:\ICPCHEM\1\DATA\16H09l01.B\022LCVL.D\022LCVL.D#

Date Acquired:	Aug 9 2016 01:54 pm	Sample Name:	**ILCVL-160809**
Acq. Method:	DHL_3Fe.M	Misc Info:	LCVLICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 09 2016 01:04 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	13.80	ppb	2.27	10.00	70 -	130	138.0	Fail
9	Be	2	45	1.21	ppb	3.36	1.00	70 -	130	120.5	
11	B	2	45	24.35	ppb	1.79	20.00	70 -	130	121.8	
23	Na	1	45	129.60	ppb	1.83	100.00	70 -	130	129.6	
24	Mg	1	45	109.10	ppb	3.35	100.00	70 -	130	109.1	
27	Al	1	45	99.67	ppb	0.51	100.00	70 -	130	99.7	
39	K	1	45	110.80	ppb	4.64	100.00	70 -	130	110.8	
44	Ca	2	45	95.31	ppb	4.48	100.00	70 -	130	95.3	
47	Ti	1	45	5.34	ppb	2.11	5.00	70 -	130	106.8	
51	V	1	45	1.15	ppb	2.61	1.00	70 -	130	115.0	
52	Cr	1	45	5.66	ppb	1.07	5.00	70 -	130	113.2	
55	Mn	1	45	5.05	ppb	0.65	5.00	70 -	130	101.0	
56	Fe	1	72	108.90	ppb	1.07	100.00	70 -	130	108.9	
59	Co	1	72	5.53	ppb	1.64	5.00	70 -	130	110.6	
60	Ni	1	72	5.46	ppb	4.65	5.00	70 -	130	109.2	
63	Cu	1	72	5.63	ppb	1.11	5.00	70 -	130	112.5	
66	Zn	1	72	5.82	ppb	5.06	5.00	70 -	130	116.4	
75	As	1	72	5.41	ppb	1.94	5.00	70 -	130	108.1	
78	Se	1	72	5.64	ppb	4.93	5.00	70 -	130	112.8	
88	Sr	2	115	5.61	ppb	2.78	5.00	70 -	130	112.1	
95	Mo	2	115	5.26	ppb	2.68	5.00	70 -	130	105.2	
107	Ag	2	115	2.11	ppb	3.20	2.00	70 -	130	105.6	
111	Cd	2	115	1.06	ppb	8.62	1.00	70 -	130	106.1	
118	Sn	2	115	5.13	ppb	1.54	5.00	70 -	130	102.6	
121	Sb	2	115	2.05	ppb	1.64	2.00	70 -	130	102.4	
137	Ba	2	115	4.82	ppb	1.91	5.00	70 -	130	96.4	
205	Tl	2	209	1.09	ppb	2.13	1.00	70 -	130	108.5	
208	Pb	2	209	1.06	ppb	0.80	1.00	70 -	130	106.0	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	-3529.36	3.10	76.78	-4597.0	70 -	120	ISFail
45	Sc	1	155051.92	1.11	158070.19	98.1	70 -	120	
45	Sc	2	7390682.50	2.92	6406944.50	115.4	70 -	120	
72	Ge	1	88977.75	1.41	88651.82	100.4	70 -	120	
115	In	2	7193810.00	1.54	7384352.50	97.4	70 -	120	
209	Bi	2	4621289.00	1.35	5202967.00	88.8	70 -	120	

CCV QC Report

C:\ICPCHEM\1\DATA\16H09l01.B\110CCV1.D\110CCV1.D#

Date Acquired:	Aug 9 2016 10:34 pm	Sample Name:	**CCV5-160809**
Acq. Method:	DHL_3Fe.M	Misc Info:	CCV ICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 09 2016 01:04 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	199.60	ppb	1.70	200.00	90 -	110	99.8	
9	Be	2	45	187.90	ppb	1.75	200.00	90 -	110	94.0	
11	B	2	45	183.10	ppb	2.34	200.00	90 -	110	91.6	
23	Na	1	45	5664.00	ppb	1.50	5000.00	90 -	110	113.3	Fail
24	Mg	1	45	5213.00	ppb	0.36	5000.00	90 -	110	104.3	
27	Al	1	45	4926.00	ppb	0.82	5000.00	90 -	110	98.5	
39	K	1	45	5156.00	ppb	0.14	5000.00	90 -	110	103.1	
44	Ca	2	45	5435.00	ppb	2.25	5000.00	90 -	110	108.7	
47	Ti	1	45	196.60	ppb	1.35	200.00	90 -	110	98.3	
51	V	1	45	205.10	ppb	0.86	200.00	90 -	110	102.6	
52	Cr	1	45	207.80	ppb	1.07	200.00	90 -	110	103.9	
55	Mn	1	45	197.10	ppb	0.56	200.00	90 -	110	98.6	
56	Fe	1	72	5067.00	ppb	0.66	5000.00	90 -	110	101.3	
59	Co	1	72	213.10	ppb	0.57	200.00	90 -	110	106.6	
60	Ni	1	72	210.30	ppb	0.93	200.00	90 -	110	105.2	
63	Cu	1	72	215.20	ppb	0.34	200.00	90 -	110	107.6	
66	Zn	1	72	206.50	ppb	0.33	200.00	90 -	110	103.3	
75	As	1	72	209.00	ppb	0.28	200.00	90 -	110	104.5	
78	Se	1	72	199.60	ppb	0.92	200.00	90 -	110	99.8	
88	Sr	2	115	217.20	ppb	1.12	200.00	90 -	110	108.6	
95	Mo	2	115	195.80	ppb	1.76	200.00	90 -	110	97.9	
107	Ag	2	115	201.30	ppb	3.08	200.00	90 -	110	100.7	
111	Cd	2	115	197.50	ppb	0.70	200.00	90 -	110	98.8	
118	Sn	2	115	196.10	ppb	1.09	200.00	90 -	110	98.1	
121	Sb	2	115	190.60	ppb	1.19	200.00	90 -	110	95.3	
137	Ba	2	115	191.80	ppb	1.26	200.00	90 -	110	95.9	
205	Tl	2	209	208.60	ppb	1.56	200.00	90 -	110	104.3	
208	Pb	2	209	203.40	ppb	1.51	200.00	90 -	110	101.7	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	-75664.59	3.31	76.78	-98552.4	70 -	120		ISFail
45	Sc	1	124785.66	0.45	158070.19	78.9	70 -	120		
45	Sc	2	6302517.50	2.28	6406944.50	98.4	70 -	120		
72	Ge	1	68975.04	0.29	88651.82	77.8	70 -	120		
115	In	2	6306791.00	1.45	7384352.50	85.4	70 -	120		
209	Bi	2	4367557.00	1.66	5202967.00	83.9	70 -	120		

CCV QC Report

C:\ICPCHEM\1\DATA\16H09l01.B\112LCVL.D\112LCVL.D#

Date Acquired:	Aug 9 2016 10:45 pm	Sample Name:	**LCVL5-160809**
Acq. Method:	DHL_3Fe.M	Misc Info:	LCVLICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 09 2016 01:04 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	9.98	ppb	1.41	10.00	70 -	130	99.8	
9	Be	2	45	0.98	ppb	5.81	1.00	70 -	130	97.8	
11	B	2	45	19.45	ppb	2.92	20.00	70 -	130	97.3	
23	Na	1	45	84.87	ppb	0.87	100.00	70 -	130	84.9	
24	Mg	1	45	105.80	ppb	2.40	100.00	70 -	130	105.8	
27	Al	1	45	107.10	ppb	2.86	100.00	70 -	130	107.1	
39	K	1	45	104.40	ppb	1.08	100.00	70 -	130	104.4	
44	Ca	2	45	104.20	ppb	5.11	100.00	70 -	130	104.2	
47	Ti	1	45	5.37	ppb	10.81	5.00	70 -	130	107.4	
51	V	1	45	1.18	ppb	3.25	1.00	70 -	130	118.0	
52	Cr	1	45	5.30	ppb	1.79	5.00	70 -	130	106.0	
55	Mn	1	45	5.07	ppb	3.86	5.00	70 -	130	101.5	
56	Fe	1	72	112.20	ppb	1.84	100.00	70 -	130	112.2	
59	Co	1	72	5.31	ppb	1.44	5.00	70 -	130	106.3	
60	Ni	1	72	5.38	ppb	1.03	5.00	70 -	130	107.6	
63	Cu	1	72	5.42	ppb	1.93	5.00	70 -	130	108.4	
66	Zn	1	72	5.16	ppb	2.52	5.00	70 -	130	103.2	
75	As	1	72	5.39	ppb	0.72	5.00	70 -	130	107.7	
78	Se	1	72	5.61	ppb	6.00	5.00	70 -	130	112.3	
88	Sr	2	115	5.30	ppb	3.19	5.00	70 -	130	106.0	
95	Mo	2	115	4.85	ppb	3.25	5.00	70 -	130	97.1	
107	Ag	2	115	2.06	ppb	3.77	2.00	70 -	130	102.9	
111	Cd	2	115	0.99	ppb	10.34	1.00	70 -	130	98.7	
118	Sn	2	115	5.09	ppb	3.09	5.00	70 -	130	101.9	
121	Sb	2	115	1.94	ppb	3.14	2.00	70 -	130	96.8	
137	Ba	2	115	4.99	ppb	1.12	5.00	70 -	130	99.8	
205	Tl	2	209	1.11	ppb	2.10	1.00	70 -	130	111.2	
208	Pb	2	209	1.07	ppb	1.69	1.00	70 -	130	106.9	

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	RHigh	-2404.03	9.12	76.78	-3131.2	70 -	120	ISFail
45	Sc	1		128353.91	1.92	158070.19	81.2	70 -	120	
45	Sc	2		6258815.50	2.46	6406944.50	97.7	70 -	120	
72	Ge	1		71743.65	1.57	88651.82	80.9	70 -	120	
115	In	2		6551750.50	1.40	7384352.50	88.7	70 -	120	
209	Bi	2		4522111.00	0.97	5202967.00	86.9	70 -	120	

CCB QC Report

C:\ICPCHEM\1\DATA\16H09l01.B\113_CCB.D\113_CCB.D#

Date Acquired:	Aug 9 2016 10:51 pm	Sample Name:	**CCB5-160809**
Acq. Method:	DHL_3Fe.M	Misc Info:	CCB ICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 09 2016 01:04 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	MDL S	MDL Aq	Flag
7	Li	2	45	0.149	ppb	3.32	2.00	2.00	
9	Be	2	45	0.022	ppb	25.44	0.40	0.30	
11	B	2	45	1.737	ppb	3.08	10.00	10.00	
23	Na	1	45	-17.590	ppb	1.87	50.00	#####	
24	Mg	1	45	2.279	ppb	10.45	50.00	#####	
27	Al	1	45	13.230	ppb	7.09	50.00	10.00	FailAq
39	K	1	45	4.012	ppb	5.52	50.00	#####	
44	Ca	2	45	18.890	ppb	4.87	50.00	#####	
47	Ti	1	45	0.106	ppb	21.65	4.00	3.00	
51	V	1	45	0.021	ppb	11.72	4.00	3.00	
52	Cr	1	45	-0.001	ppb	13.25	2.00	2.00	
55	Mn	1	45	0.126	ppb	16.10	2.00	3.00	
56	Fe	1	72	4.464	ppb	16.01	50.00	30.00	
59	Co	1	72	0.028	ppb	8.22	2.00	3.00	
60	Ni	1	72	0.123	ppb	8.50	2.00	3.00	
63	Cu	1	72	0.069	ppb	13.63	2.00	2.00	
66	Zn	1	72	1.030	ppb	10.51	4.00	2.00	
75	As	1	72	0.068	ppb	3.47	2.00	2.00	
78	Se	1	72	0.168	ppb	15.60	0.60	2.00	
88	Sr	2	115	0.179	ppb	2.97	4.00	3.00	
95	Mo	2	115	0.045	ppb	7.02	2.00	2.00	
107	Ag	2	115	0.031	ppb	8.69	0.40	1.00	
111	Cd	2	115	0.020	ppb	14.59	0.40	0.30	
118	Sn	2	115	0.081	ppb	10.28	20.00	3.00	
121	Sb	2	115	0.036	ppb	14.80	2.00	0.80	
137	Ba	2	115	0.140	ppb	6.72	2.00	3.00	
205	Tl	2	209	0.062	ppb	3.96	2.00	0.50	
208	Pb	2	209	0.037	ppb	7.76	0.40	0.30	

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	RHigh	-49.93	23.51	76.78	-65.0	70 - 120	ISFail
45	Sc	1		130748.68	1.01	158070.19	82.7	70 - 120	
45	Sc	2		6263012.50	1.31	6406944.50	97.8	70 - 120	
72	Ge	1		72650.02	0.98	88651.82	81.9	70 - 120	
115	In	2		6516653.50	0.83	7384352.50	88.2	70 - 120	
209	Bi	2		4580867.00	0.91	5202967.00	88.0	70 - 120	

PB QC Report

C:\ICPCHEM\1\DATA\16H09l01.B\114__PB.D\114__PB.D#

76687

Date Acquired:	Aug 9 2016 10:57 pm	Sample Name:	MB-~~76663~~
Acq. Method:	DHL_3Fe.M	Misc Info:	MBLKICPMS_TWDOD
Operator:	KL	Bench Diln:	1.00
Last Cal. Update:	Aug 09 2016 01:04 pm	Auto Dil:	Undiluted
Instrument:	ICPMS3	Total Dil:	1.00

QC Elements

Element				Conc.		RSD(%)	MDL	RL	Flag
7	Li	2	45	0.116	ppb	3.19	2.0	5.00	
9	Be	2	45	-0.003	ppb	25.51	0.3	1.00	
11	B	2	45	1.221	ppb	2.79	10.0	30.00	
23	Na	1	45	-31.450	ppb	1.22	100.0	#####	
24	Mg	1	45	2.236	ppb	4.79	100.0	#####	
27	Al	1	45	2.962	ppb	5.20	10.0	30.00	
39	K	1	45	-6.666	ppb	1.69	100.0	#####	
44	Ca	2	45	19.140	ppb	5.33	100.0	#####	
47	Ti	1	45	0.063	ppb	49.99	3.0	10.00	
51	V	1	45	0.025	ppb	14.30	3.0	10.00	
52	Cr	1	45	-0.054	ppb	11.71	2.0	5.00	
55	Mn	1	45	0.051	ppb	11.45	3.0	10.00	
56	Fe	1	72	3.046	ppb	8.16	30.0	#####	
59	Co	1	72	-0.003	ppb	25.24	3.0	10.00	
60	Ni	1	72	-0.025	ppb	33.75	3.0	10.00	
63	Cu	1	72	0.015	ppb	3.83	2.0	10.00	
66	Zn	1	72	0.075	ppb	14.94	2.0	5.00	
75	As	1	72	-0.021	ppb	5.48	2.0	5.00	
78	Se	1	72	0.006	ppb	11.09	2.0	5.00	
88	Sr	2	115	0.061	ppb	4.52	3.0	10.00	
95	Mo	2	115	0.002	ppb	6.25	2.0	5.00	
107	Ag	2	115	0.009	ppb	18.42	1.0	2.00	
111	Cd	2	115	-0.005	ppb	35.37	0.3	1.00	
118	Sn	2	115	0.036	ppb	17.01	3.0	10.00	
121	Sb	2	115	0.014	ppb	16.13	0.8	2.50	
137	Ba	2	115	0.036	ppb	29.09	3.0	10.00	
205	Tl	2	209	0.034	ppb	5.09	0.5	1.50	
208	Pb	2	209	0.019	ppb	2.08	0.3	1.00	

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	RHig	-32.23	21.44	76.78	-42.0	70 - 120	ISFail
45	Sc	1		128496.87	0.88	158070.19	81.3	70 - 120	
45	Sc	2		6286610.50	2.57	6406944.50	98.1	70 - 120	
72	Ge	1		71501.47	1.37	88651.82	80.7	70 - 120	
115	In	2		6715174.00	1.12	7384352.50	90.9	70 - 120	
209	Bi	2		4679310.50	1.15	5202967.00	89.9	70 - 120	

LCS QC Report

C:\ICPCHEM\1\DATA\16H09l01.B\115_LCS.D\115_LCS.D#

76687

Date Acquired:	Aug 9 2016 11:03 pm	Sample Name:	LCS-~~76663~~
Acq. Method:	DHL_3Fe.M	Misc Info:	LCS ICPMS_TWDOD1
Operator:	KL	Bench Diln:	1.00
Last Cal. Update:	Aug 09 2016 01:04 pm	Auto Dil:	Undiluted
Instrument:	ICPMS3	Total Dil:	1.00

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	191.50	ppb	1.15	200.00	80 -	120	95.8	
9	Be	2	45	182.90	ppb	1.81	200.00	80 -	120	91.5	
11	B	2	45	175.40	ppb	2.15	200.00	80 -	120	87.7	
23	Na	1	45	5311.00	ppb	0.77	5000.00	80 -	120	106.2	
24	Mg	1	45	4913.00	ppb	1.22	5000.00	80 -	120	98.3	
27	Al	1	45	4890.00	ppb	1.43	5000.00	80 -	120	97.8	
39	K	1	45	4927.00	ppb	0.25	5000.00	80 -	120	98.5	
44	Ca	2	45	5070.00	ppb	1.73	5000.00	80 -	120	101.4	
47	Ti	1	45	205.00	ppb	1.82	200.00	80 -	120	102.5	
51	V	1	45	201.20	ppb	0.64	200.00	80 -	120	100.6	
52	Cr	1	45	203.50	ppb	1.03	200.00	80 -	120	101.8	
55	Mn	1	45	194.70	ppb	1.43	200.00	80 -	120	97.4	
56	Fe	1	72	4929.00	ppb	1.41	5000.00	80 -	120	98.6	
59	Co	1	72	206.50	ppb	0.63	200.00	80 -	120	103.3	
60	Ni	1	72	202.80	ppb	1.09	200.00	80 -	120	101.4	
63	Cu	1	72	210.10	ppb	0.11	200.00	80 -	120	105.1	
66	Zn	1	72	205.90	ppb	0.75	200.00	80 -	120	103.0	
75	As	1	72	206.60	ppb	0.27	200.00	80 -	120	103.3	
78	Se	1	72	201.40	ppb	2.05	200.00	80 -	120	100.7	
88	Sr	2	115	214.70	ppb	2.21	200.00	80 -	120	107.4	
95	Mo	2	115	191.20	ppb	1.94	200.00	80 -	120	95.6	
107	Ag	2	115	191.50	ppb	1.83	200.00	80 -	120	95.8	
111	Cd	2	115	196.00	ppb	1.40	200.00	80 -	120	98.0	
118	Sn	2	115	190.50	ppb	1.62	200.00	80 -	120	95.3	
121	Sb	2	115	189.00	ppb	1.43	200.00	80 -	120	94.5	
137	Ba	2	115	191.40	ppb	1.34	200.00	80 -	120	95.7	
205	Tl	2	209	206.20	ppb	1.22	200.00	80 -	120	103.1	
208	Pb	2	209	200.40	ppb	0.49	200.00	80 -	120	100.2	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	-69491.88	0.76	76.78	-90512.5	70 -	120	ISFail
45	Sc	1	124534.90	0.24	158070.19	78.8	70 -	120	
45	Sc	2	5894832.50	2.54	6406944.50	92.0	70 -	120	
72	Ge	1	68815.20	0.39	88651.82	77.6	70 -	120	
115	In	2	6077147.00	1.53	7384352.50	82.3	70 -	120	
209	Bi	2	4346663.50	0.36	5202967.00	83.5	70 -	120	

LCS QC Report

C:\ICPCHEM\1\DATA\16H09l01.B\116_LCS.D\116_LCS.D#

766878

Date Acquired:	Aug 9 2016 11:09 pm	Sample Name:	LCSD-~~766487~~
Acq. Method:	DHL_3Fe.M	Misc Info:	LCSDICPMS_TWDOD1
Operator:	KL	Bench Diln:	1.00
Last Cal. Update:	Aug 09 2016 01:04 pm	Auto Dil:	Undiluted
Instrument:	ICPMS3	Total Dil:	1.00

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	191.20	ppb	2.31	200.00	80 -	120	95.6	
9	Be	2	45	182.50	ppb	1.60	200.00	80 -	120	91.3	
11	B	2	45	181.90	ppb	1.50	200.00	80 -	120	91.0	
23	Na	1	45	5591.00	ppb	1.73	5000.00	80 -	120	111.8	
24	Mg	1	45	5220.00	ppb	1.87	5000.00	80 -	120	104.4	
27	Al	1	45	4960.00	ppb	1.21	5000.00	80 -	120	99.2	
39	K	1	45	5231.00	ppb	1.18	5000.00	80 -	120	104.6	
44	Ca	2	45	5361.00	ppb	1.46	5000.00	80 -	120	107.2	
47	Ti	1	45	201.90	ppb	1.78	200.00	80 -	120	101.0	
51	V	1	45	197.70	ppb	1.43	200.00	80 -	120	98.9	
52	Cr	1	45	200.30	ppb	1.10	200.00	80 -	120	100.2	
55	Mn	1	45	192.80	ppb	1.51	200.00	80 -	120	96.4	
56	Fe	1	72	4923.00	ppb	1.39	5000.00	80 -	120	98.5	
59	Co	1	72	206.40	ppb	0.81	200.00	80 -	120	103.2	
60	Ni	1	72	201.30	ppb	1.07	200.00	80 -	120	100.7	
63	Cu	1	72	207.80	ppb	1.42	200.00	80 -	120	103.9	
66	Zn	1	72	209.40	ppb	0.58	200.00	80 -	120	104.7	
75	As	1	72	206.40	ppb	0.76	200.00	80 -	120	103.2	
78	Se	1	72	204.40	ppb	1.81	200.00	80 -	120	102.2	
88	Sr	2	115	215.10	ppb	1.65	200.00	80 -	120	107.6	
95	Mo	2	115	191.70	ppb	1.74	200.00	80 -	120	95.9	
107	Ag	2	115	187.70	ppb	1.74	200.00	80 -	120	93.9	
111	Cd	2	115	196.00	ppb	1.99	200.00	80 -	120	98.0	
118	Sn	2	115	190.40	ppb	1.09	200.00	80 -	120	95.2	
121	Sb	2	115	183.70	ppb	1.22	200.00	80 -	120	91.9	
137	Ba	2	115	191.30	ppb	1.70	200.00	80 -	120	95.7	
205	Tl	2	209	207.10	ppb	1.32	200.00	80 -	120	103.6	
208	Pb	2	209	201.40	ppb	1.61	200.00	80 -	120	100.7	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	-69421.23	3.58	76.78	-90420.5	70 -	120	ISFail
45	Sc	1	126307.20	0.83	158070.19	79.9	70 -	120	
45	Sc	2	5852857.50	1.30	6406944.50	91.4	70 -	120	
72	Ge	1	68626.96	0.51	88651.82	77.4	70 -	120	
115	In	2	5902131.00	1.44	7384352.50	79.9	70 -	120	
209	Bi	2	4282167.00	0.80	5202967.00	82.3	70 -	120	

DT QC Report

C:\ICPCHEM\1\DATA\16H09l01.B\119DT1.D\119DT1.D#

Date Acquired:	Aug 9 2016 11:27 pm	Sample Name:	**1607337-26A SD**
Acq. Method:	DHL_3Fe.M	Misc Info:	SD ICPMS_TWDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	Aug 09 2016 01:04 pm	Auto Diln:	Undiluted
Instrument:	ICPMS3	Total Diln:	5.00

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)	Rec(%)	Flag
7	Li	2	45	0.02	ppb	3.26	-19.32	90 - 110	-0.6	
9	Be	2	45	-0.01	ppb	34.80	0.04	90 - 110	-188.5	
11	B	2	45	0.43	ppb	1.01	16.54	90 - 110	13.1	
23	Na	1	45	-51.29	ppb	1.59	131.00	90 - 110	-195.8	
24	Mg	1	45	-2.32	ppb	32.10	22.09	90 - 110	-52.4	
27	Al	1	45	-3.78	ppb	20.30	9.23	90 - 110	-204.5	
39	K	1	45	-42.82	ppb	2.32	8.69	90 - 110	######	
44	Ca	2	45	-29.56	ppb	2.42	69.33	90 - 110	-213.2	
47	Ti	1	45	0.03	ppb	24.74	0.09	90 - 110	141.6	
51	V	1	45	-0.16	ppb	3.90	0.05	90 - 110	######	
52	Cr	1	45	-0.11	ppb	21.60	0.03	90 - 110	######	
55	Mn	1	45	-0.07	ppb	61.76	0.09	90 - 110	-392.7	
56	Fe	1	72	-4.42	ppb	34.47	3.84	90 - 110	-574.7	
59	Co	1	72	-0.01	ppb	47.09	0.04	90 - 110	-98.8	
60	Ni	1	72	-0.06	ppb	16.54	0.05	90 - 110	-548.8	
63	Cu	1	72	-0.09	ppb	28.00	0.48	90 - 110	-90.8	
66	Zn	1	72	-0.25	ppb	32.97	0.70	90 - 110	-179.8	
75	As	1	72	-0.28	ppb	5.35	0.04	90 - 110	######	
78	Se	1	72	-0.28	ppb	30.99	0.11	90 - 110	######	
88	Sr	2	115	-0.06	ppb	7.29	1.23	90 - 110	-25.0	
95	Mo	2	115	0.00	ppb	16.95	0.10	90 - 110	-7.6	
107	Ag	2	115	0.00	ppb	12.48	0.04	90 - 110	21.3	
111	Cd	2	115	-0.01	ppb	16.29	0.04	90 - 110	-148.7	
118	Sn	2	115	0.00	ppb	8.48	0.14	90 - 110	6.9	
121	Sb	2	115	0.00	ppb	39.28	0.12	90 - 110	-6.2	
137	Ba	2	115	-0.03	ppb	31.39	0.15	90 - 110	-96.8	
205	Tl	2	209	-0.01	ppb	21.76	0.20	90 - 110	-13.8	
208	Pb	2	209	-0.02	ppb	10.64	0.06	90 - 110	-190.1	

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	RHig	-19.32	121.61	76.78	-25.2	70 -	120	ISFail
45	Sc	1		205868.92	1.08	158070.19	130.2	70 -	120	ISFail
45	Sc	2		9292643.00	0.62	6406944.50	145.0	70 -	120	ISFail
72	Ge	1		113752.76	1.31	88651.82	128.3	70 -	120	ISFail
115	In	2		10011364.00	0.59	7384352.50	135.6	70 -	120	ISFail
209	Bi	2		7018410.50	0.44	5202967.00	134.9	70 -	120	ISFail

DNR

PDS QC Report

C:\ICPCHEM\1\DATA\16H09l01.B\130_PDS.D\130_PDS.D#

Date Acquired:	Aug 10 2016 12:34 am	Sample Name:	**1607337-26A PDS**
Acq. Method:	DHL_3Fe.M	Misc Info:	PDS ICPMS_TWDOD1
Operator:	KL	Bench Diln:	1.00
Last Cal. Update:	Aug 09 2016 01:04 pm	Auto Diln:	Undiluted
Instrument:	ICPMS3	Total Diln:	1.00

QC Elements

Element				Conc.		RSD(%)	Ref Conc	Spike	Range	Rec(%)	Flag
7	Li	2	45	158.80	ppb	1.14	-36628.96	200	75-125	######	Fail
9	Be	2	45	163.50	ppb	1.31	0.04	200	75-125	81.7	
11	B	2	45	172.10	ppb	1.02	16.54	200	75-125	77.8	
23	Na	1	45	5485.00	ppb	0.79	131.00	5000	75-125	107.1	
24	Mg	1	45	5002.00	ppb	0.39	22.09	5000	75-125	99.6	
27	Al	1	45	4968.00	ppb	1.14	9.23	5000	75-125	99.2	
39	K	1	45	5000.00	ppb	0.39	8.69	5000	75-125	99.8	
44	Ca	2	45	5075.00	ppb	2.92	69.33	5000	75-125	100.1	
47	Ti	1	45	194.80	ppb	1.20	0.09	200	75-125	97.4	
51	V	1	45	195.00	ppb	0.28	0.05	200	75-125	97.5	
52	Cr	1	45	198.80	ppb	0.36	0.03	200	75-125	99.4	
55	Mn	1	45	190.20	ppb	0.66	0.09	200	75-125	95.1	
56	Fe	1	72	4874.00	ppb	0.71	3.84	5000	75-125	97.4	
59	Co	1	72	200.20	ppb	0.29	0.04	200	75-125	100.1	
60	Ni	1	72	194.10	ppb	0.24	0.05	200	75-125	97.0	
63	Cu	1	72	196.80	ppb	0.03	0.48	200	75-125	98.2	
66	Zn	1	72	197.30	ppb	0.51	0.70	200	75-125	98.3	
75	As	1	72	196.00	ppb	0.53	0.04	200	75-125	98.0	
78	Se	1	72	192.40	ppb	1.58	0.11	200	75-125	96.1	
88	Sr	2	115	200.30	ppb	1.60	1.23	200	75-125	99.5	
95	Mo	2	115	177.70	ppb	1.78	0.10	200	75-125	88.8	
107	Ag	2	115	191.70	ppb	1.20	0.04	200	75-125	95.8	
111	Cd	2	115	184.10	ppb	1.39	0.04	200	75-125	92.0	
118	Sn	2	115	191.90	ppb	1.65	0.14	200	75-125	95.9	
121	Sb	2	115	181.40	ppb	1.54	0.12	200	75-125	90.6	
137	Ba	2	115	187.90	ppb	1.31	0.15	200	75-125	93.9	
205	Tl	2	209	199.10	ppb	1.51	0.20	200	75-125	99.4	
208	Pb	2	209	193.30	ppb	1.60	0.06	200	75-125	96.6	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-36628.96	4.68	76.78	-47708.9	70 - 120	ISFail
45	Sc	1	125599.98	0.73	158070.19	79.5	70 - 120	
45	Sc	2	5386959.00	1.27	6406944.50	84.1	70 - 120	
72	Ge	1	68421.66	0.57	88651.82	77.2	70 - 120	
115	In	2	5853272.50	1.15	7384352.50	79.3	70 - 120	
209	Bi	2	4369750.00	0.72	5202967.00	84.0	70 - 120	

CCV QC Report

C:\ICPCHEM\1\DATA\16H09l01.B\131CCV1.D\131CCV1.D#

Date Acquired:	Aug 10 2016 12:40 am	Sample Name:	**CCV6-160809**
Acq. Method:	DHL_3Fe.M	Misc Info:	CCV ICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 09 2016 01:04 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	167.40	ppb	1.47	200.00	90 -	110	83.7	Fail
9	Be	2	45	171.80	ppb	1.06	200.00	90 -	110	85.9	Fail
11	B	2	45	166.70	ppb	1.71	200.00	90 -	110	83.4	Fail
23	Na	1	45	5465.00	ppb	1.87	5000.00	90 -	110	109.3	
24	Mg	1	45	5136.00	ppb	1.43	5000.00	90 -	110	102.7	
27	Al	1	45	5019.00	ppb	1.02	5000.00	90 -	110	100.4	
39	K	1	45	5195.00	ppb	1.89	5000.00	90 -	110	103.9	
44	Ca	2	45	5317.00	ppb	1.95	5000.00	90 -	110	106.3	
47	Ti	1	45	198.10	ppb	2.78	200.00	90 -	110	99.1	
51	V	1	45	193.60	ppb	0.91	200.00	90 -	110	96.8	
52	Cr	1	45	196.00	ppb	1.20	200.00	90 -	110	98.0	
55	Mn	1	45	193.30	ppb	1.32	200.00	90 -	110	96.7	
56	Fe	1	72	4978.00	ppb	1.21	5000.00	90 -	110	99.6	
59	Co	1	72	203.60	ppb	0.54	200.00	90 -	110	101.8	
60	Ni	1	72	198.10	ppb	1.04	200.00	90 -	110	99.1	
63	Cu	1	72	204.00	ppb	0.67	200.00	90 -	110	102.0	
66	Zn	1	72	204.20	ppb	1.22	200.00	90 -	110	102.1	
75	As	1	72	205.10	ppb	0.48	200.00	90 -	110	102.6	
78	Se	1	72	204.60	ppb	1.97	200.00	90 -	110	102.3	
88	Sr	2	115	204.10	ppb	1.67	200.00	90 -	110	102.1	
95	Mo	2	115	187.90	ppb	1.81	200.00	90 -	110	94.0	
107	Ag	2	115	192.90	ppb	1.47	200.00	90 -	110	96.5	
111	Cd	2	115	192.80	ppb	1.10	200.00	90 -	110	96.4	
118	Sn	2	115	195.80	ppb	1.49	200.00	90 -	110	97.9	
121	Sb	2	115	193.30	ppb	1.05	200.00	90 -	110	96.7	
137	Ba	2	115	191.20	ppb	1.01	200.00	90 -	110	95.6	
205	Tl	2	209	205.90	ppb	0.44	200.00	90 -	110	103.0	
208	Pb	2	209	199.00	ppb	1.90	200.00	90 -	110	99.5	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	-56261.30	1.15	76.78	-73279.8	70 -	120		ISFail
45	Sc	1	124555.60	0.67	158070.19	78.8	70 -	120		
45	Sc	2	5296972.00	1.77	6406944.50	82.7	70 -	120		
72	Ge	1	66748.51	0.64	88651.82	75.3	70 -	120		
115	In	2	5704471.00	0.52	7384352.50	77.3	70 -	120		
209	Bi	2	4283476.00	0.74	5202967.00	82.3	70 -	120		

CCV QC Report

C:\ICPCHEM\1\DATA\16H09l01.B\133LCVL.D\133LCVL.D#

Date Acquired:	Aug 10 2016 12:52 am	Sample Name:	**LCVL6-160809**
Acq. Method:	DHL_3Fe.M	Misc Info:	LCVLICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 09 2016 01:04 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	8.36	ppb	0.41	10.00	70 -	130	83.6	
9	Be	2	45	0.93	ppb	6.23	1.00	70 -	130	92.7	
11	B	2	45	17.97	ppb	1.06	20.00	70 -	130	89.9	
23	Na	1	45	75.06	ppb	1.50	100.00	70 -	130	75.1	
24	Mg	1	45	106.10	ppb	2.21	100.00	70 -	130	106.1	
27	Al	1	45	107.20	ppb	1.50	100.00	70 -	130	107.2	
39	K	1	45	102.50	ppb	3.12	100.00	70 -	130	102.5	
44	Ca	2	45	96.05	ppb	1.13	100.00	70 -	130	96.1	
47	Ti	1	45	5.58	ppb	14.76	5.00	70 -	130	111.6	
51	V	1	45	1.01	ppb	3.86	1.00	70 -	130	100.9	
52	Cr	1	45	4.96	ppb	1.30	5.00	70 -	130	99.3	
55	Mn	1	45	5.15	ppb	2.02	5.00	70 -	130	103.0	
56	Fe	1	72	109.10	ppb	1.44	100.00	70 -	130	109.1	
59	Co	1	72	5.20	ppb	1.89	5.00	70 -	130	104.0	
60	Ni	1	72	5.19	ppb	3.60	5.00	70 -	130	103.9	
63	Cu	1	72	5.26	ppb	2.20	5.00	70 -	130	105.3	
66	Zn	1	72	5.39	ppb	4.12	5.00	70 -	130	107.7	
75	As	1	72	5.14	ppb	2.63	5.00	70 -	130	102.7	
78	Se	1	72	5.64	ppb	7.87	5.00	70 -	130	112.8	
88	Sr	2	115	5.01	ppb	0.98	5.00	70 -	130	100.2	
95	Mo	2	115	4.61	ppb	2.50	5.00	70 -	130	92.2	
107	Ag	2	115	2.02	ppb	1.23	2.00	70 -	130	100.8	
111	Cd	2	115	1.00	ppb	5.18	1.00	70 -	130	99.9	
118	Sn	2	115	5.02	ppb	0.81	5.00	70 -	130	100.5	
121	Sb	2	115	2.06	ppb	0.44	2.00	70 -	130	102.8	
137	Ba	2	115	4.84	ppb	1.77	5.00	70 -	130	96.8	
205	Tl	2	209	1.08	ppb	1.83	1.00	70 -	130	108.1	
208	Pb	2	209	1.04	ppb	3.49	1.00	70 -	130	103.6	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	-1894.92	0.81	76.78	-2468.1	70 -	120	ISFail
45	Sc	1	127512.96	1.28	158070.19	80.7	70 -	120	
45	Sc	2	5345241.50	1.84	6406944.50	83.4	70 -	120	
72	Ge	1	69017.09	0.78	88651.82	77.9	70 -	120	
115	In	2	5931265.50	0.47	7384352.50	80.3	70 -	120	
209	Bi	2	4508333.00	0.53	5202967.00	86.6	70 -	120	

CCB QC Report

C:\ICPCHEM\1\DATA\16H09l01.B\134_CCB.D\134_CCB.D#

Date Acquired:	Aug 10 2016 12:58 am	Sample Name:	**CCB6-160809**
Acq. Method:	DHL_3Fe.M	Misc Info:	CCB ICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 09 2016 01:04 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	MDL S	MDL Aq	Flag
7	Li	2	45	0.101	ppb	14.77	2.00	2.00	
9	Be	2	45	0.018	ppb	16.07	0.40	0.30	
11	B	2	45	1.904	ppb	2.17	10.00	10.00	
23	Na	1	45	-25.190	ppb	1.25	50.00	#####	
24	Mg	1	45	1.985	ppb	7.37	50.00	#####	
27	Al	1	45	12.990	ppb	11.78	50.00	10.00	FailAq
39	K	1	45	2.226	ppb	2.38	50.00	#####	
44	Ca	2	45	14.170	ppb	3.90	50.00	#####	
47	Ti	1	45	0.228	ppb	48.05	4.00	3.00	
51	V	1	45	0.067	ppb	5.49	4.00	3.00	
52	Cr	1	45	-0.014	ppb	11.68	2.00	2.00	
55	Mn	1	45	0.099	ppb	33.22	2.00	3.00	
56	Fe	1	72	2.892	ppb	10.97	50.00	30.00	
59	Co	1	72	0.042	ppb	8.22	2.00	3.00	
60	Ni	1	72	0.107	ppb	18.76	2.00	3.00	
63	Cu	1	72	0.079	ppb	7.94	2.00	2.00	
66	Zn	1	72	0.873	ppb	10.21	4.00	2.00	
75	As	1	72	-0.028	ppb	6.15	2.00	2.00	
78	Se	1	72	0.106	ppb	9.27	0.60	2.00	
88	Sr	2	115	0.136	ppb	7.78	4.00	3.00	
95	Mo	2	115	0.048	ppb	13.97	2.00	2.00	
107	Ag	2	115	0.035	ppb	31.56	0.40	1.00	
111	Cd	2	115	0.016	ppb	17.44	0.40	0.30	
118	Sn	2	115	0.106	ppb	9.34	20.00	3.00	
121	Sb	2	115	0.114	ppb	2.32	2.00	0.80	
137	Ba	2	115	0.159	ppb	6.77	2.00	3.00	
205	Tl	2	209	0.122	ppb	9.29	2.00	0.50	
208	Pb	2	209	0.043	ppb	10.14	0.40	0.30	

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	RHigh	-30.83	20.91	76.78	-40.2	70 - 120	ISFail
45	Sc	1		127231.00	1.85	158070.19	80.5	70 - 120	
45	Sc	2		5344402.50	0.65	6406944.50	83.4	70 - 120	
72	Ge	1		69252.09	1.04	88651.82	78.1	70 - 120	
115	In	2		6033401.00	0.52	7384352.50	81.7	70 - 120	
209	Bi	2		4493201.00	0.82	5202967.00	86.4	70 - 120	

ICSA QC Report

C:\ICPCHEM\1\DATA\16H09l01.B\139ICSA.D\139ICSA.D#

Date Acquired:	Aug 10 2016 01:28 am	Sample Name:	**ICSA-160809**
Acq. Method:	DHL_3Fe.M	Misc Info:	ICSAICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 09 2016 01:04 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	RL S	RL Aq	Flag
7	Li	2	45	0.070	ppb	2.00	8.00	5.00	
9	Be	2	45	0.001	ppb	34.45	0.32	0.80	
11	B	2	45	2.312	ppb	1.17	30.00	30.00	
23	Na	1	45	105200.000	ppb	1.04	#######	#######	
24	Mg	1	45	90950.000	ppb	0.26	#######	#######	
27	Al	1	45	100500.000	ppb	0.69	#######	#######	
39	K	1	45	98300.000	ppb	0.71	#######	#######	
44	Ca	2	45	93690.000	ppb	1.88	#######	#######	
47	Ti	1	45	1967.000	ppb	2.25	10.00	10.00	
51	V	1	45	0.007	ppb	5.61	10.00	10.00	
52	Cr	1	45	0.736	ppb	2.29	8.00	5.00	
55	Mn	1	45	0.784	ppb	2.89	8.00	10.00	
56	Fe	1	72	92090.000	ppb	1.07	#######	#######	
59	Co	1	72	1.251	ppb	2.39	8.00	10.00	
60	Ni	1	72	0.367	ppb	8.44	8.00	10.00	
63	Cu	1	72	2.143	ppb	4.19	8.00	10.00	
66	Zn	1	72	1.740	ppb	10.89	10.00	5.00	
75	As	1	72	0.424	ppb	2.29	4.00	5.00	
78	Se	1	72	0.405	ppb	4.88	2.00	5.00	
88	Sr	2	115	1.102	ppb	1.24	10.00	10.00	
95	Mo	2	115	1840.000	ppb	1.36	8.00	5.00	
107	Ag	2	115	0.095	ppb	9.31	0.80	2.00	
111	Cd	2	115	0.358	ppb	4.48	1.20	1.00	
118	Sn	2	115	0.112	ppb	11.93	10.00	10.00	
121	Sb	2	115	0.124	ppb	4.55	4.00	2.50	
137	Ba	2	115	0.485	ppb	6.26	8.00	10.00	
205	Tl	2	209	0.030	ppb	4.63	4.00	1.50	
208	Pb	2	209	0.143	ppb	5.94	1.20	1.00	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	-4.44	104.01	76.78	-5.8	70	-	120	ISFail
45	Sc	1	119130.96	0.54	158070.19	75.4	70	-	120	
45	Sc	2	5411480.50	1.58	6406944.50	84.5	70	-	120	
72	Ge	1	63381.42	0.44	88651.82	71.5	70	-	120	
115	In	2	6052545.50	0.79	7384352.50	82.0	70	-	120	
209	Bi	2	3898169.50	0.91	5202967.00	74.9	70	-	120	

ICS-AB QC Report

C:\ICPCHEM\1\DATA\16H09l01.B\140ICSB.D\140ICSB.D#

Date Acquired:	Aug 10 2016 01:34 am	Sample Name:	**ICSAB-160809**
Acq. Method:	DHL_3Fe.M	Misc Info:	ICSBICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 09 2016 01:04 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)			Flag
7	Li	2	45	0.08	ppb	8.76	---	80 -		120	
9	Be	2	45	0.00	ppb	5.88	---	80 -		120	
11	B	2	45	2.18	ppb	2.39	---	80 -		120	
23	Na	1	45	99220.00	ppb	0.75	100000.00	80 -		120	
24	Mg	1	45	91000.00	ppb	2.16	100000.00	80 -		120	
27	Al	1	45	96240.00	ppb	1.82	100000.00	80 -		120	
39	K	1	45	96230.00	ppb	1.17	100000.00	80 -		120	
44	Ca	2	45	94120.00	ppb	2.58	100000.00	80 -		120	
47	Ti	1	45	1933.00	ppb	2.15	---	80 -		120	
51	V	1	45	39.34	ppb	1.11	40.00	80 -		120	
52	Cr	1	45	20.35	ppb	2.07	20.00	80 -		120	
55	Mn	1	45	18.52	ppb	1.26	20.00	80 -		120	
56	Fe	1	72	90510.00	ppb	1.66	100000.00	80 -		120	
59	Co	1	72	39.63	ppb	1.40	40.00	80 -		120	
60	Ni	1	72	36.01	ppb	2.48	40.00	80 -		120	
63	Cu	1	72	19.40	ppb	2.06	20.00	80 -		120	
66	Zn	1	72	17.91	ppb	1.30	20.00	80 -		120	
75	As	1	72	19.95	ppb	1.53	20.00	80 -		120	
78	Se	1	72	18.94	ppb	4.72	20.00	80 -		120	
88	Sr	2	115	1.26	ppb	1.03	---	80 -		120	
95	Mo	2	115	1869.00	ppb	1.21	---	80 -		120	
107	Ag	2	115	17.30	ppb	2.01	20.00	80 -		120	
111	Cd	2	115	8.66	ppb	2.03	10.00	80 -		120	
118	Sn	2	115	0.32	ppb	6.45	---	80 -		120	
121	Sb	2	115	0.06	ppb	8.76	---	80 -		120	
137	Ba	2	115	0.46	ppb	4.50	---	80 -		120	
205	Tl	2	209	0.03	ppb	1.19	---	80 -		120	
208	Pb	2	209	0.14	ppb	4.34	---	80 -		120	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	-13.32	82.49	76.78	-17.4	70 -		120	ISFail
45	Sc	1	114294.10	0.74	158070.19	72.3	70 -		120	
45	Sc	2	5913222.00	2.49	6406944.50	92.3	70 -		120	
72	Ge	1	62531.31	0.48	88651.82	70.5	70 -		120	
115	In	2	6403232.00	2.00	7384352.50	86.7	70 -		120	
209	Bi	2	3877124.00	1.53	5202967.00	74.5	70 -		120	

Sample QC Report

C:\ICPCHEM\1\DATA\16H09l01.B\147SMPL.D\147SMPL.D#

Date Acquired:	Aug 10 2016 02:16 am	Sample Name:	**1607317-13A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TWDOD1
Operator:	KL	Bench Diln:	1
Last Cal. Update:	Aug 09 2016 01:04 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	0.114	ppb	#REF!	6.67	2000.00	ND
9	Be	2	45	-0.005	ppb	#REF!	21.79	2000.00	ND
11	B	2	45	37.660	ppb	#REF!	3.17	2000.00	>RL
23	Na	1	45	107.400	ppb	#REF!	1.14	25000.00	J
24	Mg	1	45	20.330	ppb	#REF!	2.50	25000.00	ND
27	Al	1	45	90.110	ppb	#REF!	1.76	10000.00	>RL
39	K	1	45	13.630	ppb	#REF!	1.96	25000.00	ND
44	Ca	2	45	222.600	ppb	#REF!	1.82	25000.00	J
47	Ti	1	45	0.302	ppb	#REF!	10.19	2000.00	ND
51	V	1	45	0.031	ppb	#REF!	10.84	2000.00	ND
52	Cr	1	45	0.021	ppb	#REF!	14.38	2000.00	ND
55	Mn	1	45	0.114	ppb	#REF!	20.79	2000.00	ND
56	Fe	1	72	4.621	ppb	#REF!	5.19	10000.00	ND
59	Co	1	72	-0.003	ppb	#REF!	5.04	2000.00	ND
60	Ni	1	72	0.013	ppb	#REF!	11.89	2000.00	ND
63	Cu	1	72	0.300	ppb	#REF!	2.25	2000.00	ND
66	Zn	1	72	1.953	ppb	#REF!	3.04	2000.00	ND
75	As	1	72	0.103	ppb	#REF!	3.80	2000.00	ND
78	Se	1	72	-0.050	ppb	#REF!	9.41	2000.00	ND
88	Sr	2	115	2.162	ppb	#REF!	1.35	2000.00	ND
95	Mo	2	115	0.049	ppb	#REF!	17.84	2000.00	ND
107	Ag	2	115	0.006	ppb	#REF!	31.61	500.00	ND
111	Cd	2	115	-0.019	ppb	#REF!	99.73	2000.00	ND
118	Sn	2	115	0.065	ppb	#REF!	13.71	2000.00	ND
121	Sb	2	115	0.012	ppb	#REF!	12.67	500.00	ND
137	Ba	2	115	0.316	ppb	#REF!	5.81	2000.00	ND
205	Tl	2	209	0.006	ppb	#REF!	17.41	2000.00	ND
208	Pb	2	209	0.088	ppb	#REF!	4.83	2000.00	ND

ISTD Elements

Element			CPS Mean	RSD(%)		Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-29.52	111.33	RHigh	76.78	-38.5	70 - 120	ISFail
45	Sc	1	132854.03	2.34		158070.19	84.0	70 - 120	
45	Sc	2	7243028.00	2.90		6406944.50	113.0	70 - 120	
72	Ge	1	74590.10	0.64		88651.82	84.1	70 - 120	
115	In	2	7234916.50	1.34		7384352.50	98.0	70 - 120	
209	Bi	2	4620196.00	1.79		5202967.00	88.8	70 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\16H09l01.B\148SMPL.D\148SMPL.D#

Date Acquired:	Aug 10 2016 02:22 am	Sample Name:	**1607317-26A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TWDOD1
Operator:	KL	Bench Diln:	1
Last Cal. Update:	Aug 09 2016 01:04 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	0.147	ppb	#REF!	7.09	2000.00	ND
9	Be	2	45	-0.003	ppb	#REF!	23.62	2000.00	ND
11	B	2	45	46.760	ppb	#REF!	1.84	2000.00	>RL
23	Na	1	45	68.480	ppb	#REF!	1.15	25000.00	ND
24	Mg	1	45	20.920	ppb	#REF!	3.74	25000.00	ND
27	Al	1	45	152.800	ppb	#REF!	1.97	10000.00	>RL
39	K	1	45	8.331	ppb	#REF!	3.98	25000.00	ND
44	Ca	2	45	356.600	ppb	#REF!	2.80	25000.00	>RL
47	Ti	1	45	0.571	ppb	#REF!	36.05	2000.00	ND
51	V	1	45	0.087	ppb	#REF!	7.99	2000.00	ND
52	Cr	1	45	0.055	ppb	#REF!	9.73	2000.00	ND
55	Mn	1	45	0.175	ppb	#REF!	3.06	2000.00	ND
56	Fe	1	72	6.155	ppb	#REF!	9.56	10000.00	ND
59	Co	1	72	0.000	ppb	#REF!	21.79	2000.00	ND
60	Ni	1	72	-0.001	ppb	#REF!	21.63	2000.00	ND
63	Cu	1	72	0.203	ppb	#REF!	1.11	2000.00	ND
66	Zn	1	72	1.960	ppb	#REF!	6.58	2000.00	ND
75	As	1	72	0.133	ppb	#REF!	6.09	2000.00	ND
78	Se	1	72	-0.011	ppb	#REF!	10.93	2000.00	ND
88	Sr	2	115	3.033	ppb	#REF!	2.72	2000.00	J
95	Mo	2	115	0.038	ppb	#REF!	10.33	2000.00	ND
107	Ag	2	115	0.009	ppb	#REF!	19.36	500.00	ND
111	Cd	2	115	-0.001	ppb	#REF!	56.87	2000.00	ND
118	Sn	2	115	0.061	ppb	#REF!	7.59	2000.00	ND
121	Sb	2	115	0.022	ppb	#REF!	4.87	500.00	ND
137	Ba	2	115	0.484	ppb	#REF!	3.45	2000.00	ND
205	Tl	2	209	0.008	ppb	#REF!	7.97	2000.00	ND
208	Pb	2	209	0.134	ppb	#REF!	7.45	2000.00	ND

ISTD Elements

Element			CPS Mean	RSD(%)		Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-41.05	42.51	RHigh	76.78	-53.5	70 - 120	ISFail
45	Sc	1	137637.75	2.28		158070.19	87.1	70 - 120	
45	Sc	2	7223075.50	3.16		6406944.50	112.7	70 - 120	
72	Ge	1	76279.60	1.79		88651.82	86.0	70 - 120	
115	In	2	7194932.50	2.03		7384352.50	97.4	70 - 120	
209	Bi	2	4668713.50	0.83		5202967.00	89.7	70 - 120	

CCV QC Report

C:\ICPCHEM\1\DATA\16H09l01.B\150CCV1.D\150CCV1.D#

Date Acquired:	Aug 10 2016 02:34 am	Sample Name:	**CCV7-160809**
Acq. Method:	DHL_3Fe.M	Misc Info:	CCV ICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 09 2016 01:04 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	211.40	ppb	1.98	200.00	90 -	110	105.7	
9	Be	2	45	193.30	ppb	2.54	200.00	90 -	110	96.7	
11	B	2	45	181.50	ppb	2.97	200.00	90 -	110	90.8	
23	Na	1	45	5794.00	ppb	0.74	5000.00	90 -	110	115.9	Fail
24	Mg	1	45	5243.00	ppb	0.99	5000.00	90 -	110	104.9	
27	Al	1	45	4782.00	ppb	0.93	5000.00	90 -	110	95.6	
39	K	1	45	5111.00	ppb	0.66	5000.00	90 -	110	102.2	
44	Ca	2	45	5330.00	ppb	2.78	5000.00	90 -	110	106.6	
47	Ti	1	45	195.70	ppb	1.93	200.00	90 -	110	97.9	
51	V	1	45	204.60	ppb	1.30	200.00	90 -	110	102.3	
52	Cr	1	45	207.40	ppb	0.93	200.00	90 -	110	103.7	
55	Mn	1	45	194.10	ppb	0.54	200.00	90 -	110	97.1	
56	Fe	1	72	4961.00	ppb	0.58	5000.00	90 -	110	99.2	
59	Co	1	72	211.40	ppb	0.42	200.00	90 -	110	105.7	
60	Ni	1	72	207.80	ppb	0.64	200.00	90 -	110	103.9	
63	Cu	1	72	212.40	ppb	0.87	200.00	90 -	110	106.2	
66	Zn	1	72	203.80	ppb	0.83	200.00	90 -	110	101.9	
75	As	1	72	206.40	ppb	0.19	200.00	90 -	110	103.2	
78	Se	1	72	193.90	ppb	1.18	200.00	90 -	110	97.0	
88	Sr	2	115	220.10	ppb	2.20	200.00	90 -	110	110.1	Fail
95	Mo	2	115	198.40	ppb	2.02	200.00	90 -	110	99.2	
107	Ag	2	115	204.10	ppb	2.60	200.00	90 -	110	102.1	
111	Cd	2	115	197.30	ppb	1.79	200.00	90 -	110	98.7	
118	Sn	2	115	193.70	ppb	2.33	200.00	90 -	110	96.9	
121	Sb	2	115	189.10	ppb	1.94	200.00	90 -	110	94.6	
137	Ba	2	115	189.90	ppb	2.75	200.00	90 -	110	95.0	
205	Tl	2	209	207.50	ppb	1.24	200.00	90 -	110	103.8	
208	Pb	2	209	201.00	ppb	1.74	200.00	90 -	110	100.5	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	-82304.90	2.29	76.78	-107201.3	70 -	120		ISFail
45	Sc	1	125201.70	0.89	158070.19	79.2	70 -	120		
45	Sc	2	6585617.50	2.74	6406944.50	102.8	70 -	120		
72	Ge	1	69514.50	0.34	88651.82	78.4	70 -	120		
115	In	2	6265898.00	2.25	7384352.50	84.9	70 -	120		
209	Bi	2	4283931.00	1.41	5202967.00	82.3	70 -	120		

CCV QC Report

C:\ICPCHEM\1\DATA\16H09l01.B\152LCVL.D\152LCVL.D#

Date Acquired:	Aug 10 2016 02:46 am	Sample Name:	**LCVL7-160809**
Acq. Method:	DHL_3Fe.M	Misc Info:	LCVLICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 09 2016 01:04 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	10.55	ppb	1.67	10.00	70 -	130	105.5	
9	Be	2	45	1.02	ppb	5.20	1.00	70 -	130	102.4	
11	B	2	45	19.50	ppb	2.95	20.00	70 -	130	97.5	
23	Na	1	45	85.41	ppb	0.67	100.00	70 -	130	85.4	
24	Mg	1	45	105.90	ppb	2.49	100.00	70 -	130	105.9	
27	Al	1	45	102.10	ppb	5.06	100.00	70 -	130	102.1	
39	K	1	45	106.40	ppb	0.78	100.00	70 -	130	106.4	
44	Ca	2	45	97.15	ppb	2.11	100.00	70 -	130	97.2	
47	Ti	1	45	4.57	ppb	8.81	5.00	70 -	130	91.5	
51	V	1	45	1.08	ppb	5.50	1.00	70 -	130	108.1	
52	Cr	1	45	5.17	ppb	1.70	5.00	70 -	130	103.3	
55	Mn	1	45	4.99	ppb	1.78	5.00	70 -	130	99.7	
56	Fe	1	72	108.10	ppb	1.80	100.00	70 -	130	108.1	
59	Co	1	72	5.38	ppb	1.05	5.00	70 -	130	107.6	
60	Ni	1	72	5.19	ppb	3.22	5.00	70 -	130	103.9	
63	Cu	1	72	5.42	ppb	0.84	5.00	70 -	130	108.5	
66	Zn	1	72	5.42	ppb	1.94	5.00	70 -	130	108.3	
75	As	1	72	5.28	ppb	2.23	5.00	70 -	130	105.5	
78	Se	1	72	5.09	ppb	9.45	5.00	70 -	130	101.8	
88	Sr	2	115	5.36	ppb	2.63	5.00	70 -	130	107.3	
95	Mo	2	115	4.99	ppb	2.38	5.00	70 -	130	99.8	
107	Ag	2	115	2.12	ppb	0.86	2.00	70 -	130	105.9	
111	Cd	2	115	1.07	ppb	10.42	1.00	70 -	130	106.5	
118	Sn	2	115	4.91	ppb	2.17	5.00	70 -	130	98.2	
121	Sb	2	115	1.99	ppb	3.25	2.00	70 -	130	99.4	
137	Ba	2	115	4.87	ppb	2.38	5.00	70 -	130	97.4	
205	Tl	2	209	1.07	ppb	2.25	1.00	70 -	130	106.7	
208	Pb	2	209	1.05	ppb	2.01	1.00	70 -	130	105.0	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	-2645.24	4.55	76.78	-3445.4	70 -	120		ISFail
45	Sc	1	131958.09	1.68	158070.19	83.5	70 -	120		
45	Sc	2	6630638.50	2.20	6406944.50	103.5	70 -	120		
72	Ge	1	72498.49	1.39	88651.82	81.8	70 -	120		
115	In	2	6417149.50	1.31	7384352.50	86.9	70 -	120		
209	Bi	2	4487306.00	0.69	5202967.00	86.2	70 -	120		

CCB QC Report

C:\ICPCHEM\1\DATA\16H09l01.B\153_CCB.D\153_CCB.D#

Date Acquired:	Aug 10 2016 02:52 am	Sample Name:	**CCB7-160809**
Acq. Method:	DHL_3Fe.M	Misc Info:	CCB ICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 09 2016 01:04 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	MDL S	MDL Aq	Flag
7	Li	2	45	0.099	ppb	4.55	2.00	2.00	
9	Be	2	45	0.028	ppb	6.74	0.40	0.30	
11	B	2	45	1.824	ppb	2.26	10.00	10.00	
23	Na	1	45	-17.230	ppb	0.69	50.00	#####	
24	Mg	1	45	2.846	ppb	8.80	50.00	#####	
27	Al	1	45	13.190	ppb	2.07	50.00	10.00	FailAq
39	K	1	45	4.196	ppb	0.71	50.00	#####	
44	Ca	2	45	15.510	ppb	3.58	50.00	#####	
47	Ti	1	45	0.361	ppb	63.82	4.00	3.00	
51	V	1	45	0.044	ppb	4.14	4.00	3.00	
52	Cr	1	45	-0.002	ppb	8.89	2.00	2.00	
55	Mn	1	45	0.122	ppb	8.00	2.00	3.00	
56	Fe	1	72	4.111	ppb	5.89	50.00	30.00	
59	Co	1	72	0.045	ppb	16.88	2.00	3.00	
60	Ni	1	72	0.140	ppb	11.71	2.00	3.00	
63	Cu	1	72	0.128	ppb	3.06	2.00	2.00	
66	Zn	1	72	0.872	ppb	7.66	4.00	2.00	
75	As	1	72	0.128	ppb	1.55	2.00	2.00	
78	Se	1	72	-0.016	ppb	8.21	0.60	2.00	
88	Sr	2	115	0.190	ppb	4.02	4.00	3.00	
95	Mo	2	115	0.077	ppb	2.00	2.00	2.00	
107	Ag	2	115	0.037	ppb	12.69	0.40	1.00	
111	Cd	2	115	0.035	ppb	4.31	0.40	0.30	
118	Sn	2	115	0.078	ppb	10.84	20.00	3.00	
121	Sb	2	115	0.058	ppb	13.12	2.00	0.80	
137	Ba	2	115	0.170	ppb	3.65	2.00	3.00	
205	Tl	2	209	0.083	ppb	5.52	2.00	0.50	
208	Pb	2	209	0.034	ppb	6.00	0.40	0.30	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-43.63	4.42	76.78	-56.8	70 - 120	ISFail
45	Sc	1	128466.02	0.42	158070.19	81.3	70 - 120	
45	Sc	2	6564520.50	2.58	6406944.50	102.5	70 - 120	
72	Ge	1	71235.80	1.58	88651.82	80.4	70 - 120	
115	In	2	6498961.00	0.94	7384352.50	88.0	70 - 120	
209	Bi	2	4515668.00	1.20	5202967.00	86.8	70 - 120	

ICP-MS3_160810B
For

DHL Work Order
1607317

Lab Data Review Check List
EPA Method 6020 / 6020A / 200.8 - Trace Metals by ICP-MS

PROJECT AND BATCH NUMBERS ARE LISTED ON THE RUN LOG	Run ID: ICP-MS3_160810B SOP: MET-ICPMS-01			
Review Item	**Yes**	**No**	**N/A**	**2nd Level Review**
Data Folder Contents 1. Is the Prep Batch Report included? ***Check the Prep Start/End Dates, Sample Amounts, Bottle #s***	X			
2. Are the reagents and spikes listed on the Prep Batch Report current with a valid expiration date? ***All standard/QC sample preparations shall be documented in LIMS***	X			x
3. Is the Run Log and instrument sequence included? ***Check the Test Code, Sample Type, Batch ID, and Analysis Date/Time***	X			

Daily Demonstration of Performance

QC items that do not meet method/SOP/project requirements will be described on the run log. All variances that impact data quality will be described in the Variance/Comment Section on page 2.

Review Item	Frequency	Limits	Pass	Fail (List Batch/Sample) **See Run Log**		2nd Level Review
Tune	Before ICAL	RSD ≤ 5% / Peak Width@10% <0.9amu	X			
P/A Factor	Before ICAL	Increasing trend	X			x
Initial Calibration Curve (ICAL) (Blank + 4 Standards)	Prior to samples and when ICV fails	R ≥ 0.995 (DoD) R ≥ 0.998 (6020A)	X			
Review Item	**Frequency**	**Limits**	**Pass**	**Fail**	**N/A**	**Review**
ICSA (N/A for Method 200.8+U)	After calibration & every 12 hours	< RL (except Mn & Zn)	X			x
ICSAB (N/A for Method 200.8+U)	After calibration & every 12 hours	80-120% (correct for ICSA result)	X			
Note: LCVLs and ICSA/ICSAB are N/A for Method 200.8 or project-specific exceptions						
ICV (Second Source Verification)	After ICAL	90-110%	X			
ICB	After calibration	< MDL	X			
CCV	Every 10 samples	90-110%	X			
CCB	Every 10 samples	< MDL (ALL + DoD)	X			
Internal Standards	Every sample and QC sample	> 70% (6020A) 60-125% (200.8) 30-120% (DoD)	X			
LCVL (6020A test code)	After ICAL, every 10 samples and end of run	70-130%			X	
LCVL (All metals test codes except 200.8/6020A)	After ICAL and end of run	70-130%	X			x
Method Blank (MB)	Every Batch	< MDL / <½ RL (DoD) or <1/10 the sample/reg limit	X			
Filter/TCLP/SPLP Blank	Filter-Dissolved only TCLP / SPLP	< MDL / <½ RL (DoD) or <1/10 the sample/reg limit			X	
Lab Control Sample (LCS)	Every Batch	80-120%	X			
Lab Control Sample Dup (LCSD)	Every Batch	80-120%	X			
LCSD - RPD	Every LCS/LCSD	15 (H2O) / 20 (Soil)	X			
Matrix Spike/ Matrix Spike Duplicate (MS/MSD)	Every Batch	80-120%			X	
MSD - RPD	Every MS/MSD	15 (H2O) / 20 (Soil)			X	
Dilution Test (SD) - RPD	Every Batch	10	X			
Post Digestion Spike (PDS)	Every Batch	75-125 / 80-120 (6020A)	X			

Lab Data Review Check List
EPA Method 6020 / 6020A / 200.8 - Trace Metals by ICP-MS

Review Item	Criteria	Yes	No	N/A	2nd Level Review
Sample Analysis 1. Are all sample hold times met?	6 months	X			x
2. Are all samples with concentrations > the highest standard used for calibration diluted and reanalyzed?	All results > high point of ICAL must be diluted	X			
3. Are ALL reported analytes and reported results > MDL highlighted by the analyst?		X	**Confirm with analyst if LIMS result does not match Labcore**		

VARIANCE REPORT

QC items that do not meet method/SOP/project requirements will be described on the run log. All variances that impact data quality will be described in this section.

NON-CONFORMANCES / VARIANCE	Criteria	Yes	No	N/A	2nd Level
1. Are all non-conformances and corrective actions included and noted?	All deviations from the method and SOP that affect data quality	X			x
2. Does the variance require approval by the Technical Director/General Manager/QA Manager?		X			

TECHNICAL DIRECTOR / QA MANAGER APPROVAL
SIGNATURE AND DATE STAMP:

Description and Corrective Actions of QC items that do not meet method/SOP/project requirements:

****INCLUDE VARIANCE ITEM / REASON / CORRECTIVE ACTION / IMPACT ON DATA****

VARIANCE ITEM	REASON	CORRECTIVE ACTION
__ CCV out of control (± 10%)	__ Carryover from previous run	__ Reanalyze QC to confirm
__ CCB out of control (> MDL / >½ RL)	__ Cross contamination	__ Recalibrate
__ MB out of control (> RL / >½ RL)	__ Lab Artifact	__ Reprep/Reanalyze sample
__ LCS __ LCSD out of control (± 20%)	__ Prep Spike error (describe)	__ Reprep/Reanalyze Batch
__ MS __ MSD out of control (± 20%)	__ Matrix Effect	__ Reanalyze Batch/Sample/QC
__ RPD out of control for MS/MSD (15/25)	__ High Levels of Target Metals	__ Verify reagents are clean
__ Internal Standard(s) out of control (see Method)	__ Insufficient sample for QC	__ Reanalyze sample to confirm
__ No MS/MSD prepared - LCS/LCSD used instead	__ Digestion/Prep Error	__ Sample results ND w/ dilution
__ Missing QC (other than MS/MSD)	__ Analytical Error	__ Client notified and approved
__ QC sample(s) was mis-spiked	__ Client Request	__ Flag Data/ Case Narative
__ ICSA/ICSAB missing or out of control (± 20%)		__ Accept data
__ LCVL out of control (± 30%)		__ Cal Std high and sample ND
__ Other (describe below)	__ Other (describe below)	__ Other (describe below)

General Comments and Impact on Data:

Analyst: Cassie Van Dyke Date of Completion: 08/11/2016

Second-Level Review: Janice Whitt Date Stamp: 8/15/2016

REVIEWED BY
By Janice Whitt at 11:19:28 AM, 8/15/2016

DHL Analytical, Inc.

Run ID: **ICP-MS3_160810B** **Run No.:** 87549

Analytical Run Date: 8/10/2016 **InstrumentID:** ICP-MS3

Analyst: Cassie Van Dyke

SampID	DF	TestCode	SampType	Batch ID	Analysis Date/Time	Q	Comments
BLANK STD 1	1	ICPMS_TWDOD	CAL	R87549	8/10/2016 11:23:00 AM		
L2-160810	1	ICPMS_TWDOD	CAL	R87549	8/10/2016 11:29:00 AM		
L-160810	1	ICPMS_TWDOD	CAL	R87549	8/10/2016 11:35:00 AM		
10X-160810	1	ICPMS_TWDOD	CAL	R87549	8/10/2016 11:41:00 AM		
5X-160810	1	ICPMS_TWDOD	CAL	R87549	8/10/2016 11:47:00 AM		
2X-160810	1	ICPMS_TWDOD	CAL	R87549	8/10/2016 11:53:00 AM		
H-160810	1	ICPMS_TWDOD	CAL	R87549	8/10/2016 11:59:00 AM		
H2-160810	1	ICPMS_TWDOD	CAL	R87549	8/10/2016 12:05:00 PM		
ICSA-160810	1	ICPMS_TWDOD	ICSA	R87549	8/10/2016 12:23:00 PM		
ICSAB-160810	1	ICPMS_TWDOD	ICSB	R87549	8/10/2016 12:29:00 PM		
ICV1-160810	1	ICPMS_TWDOD	ICV	R87549	8/10/2016 12:47:00 PM		
ICV1-160810	1	ICPMS_TWDOD	ICV	R87549	8/10/2016 12:59:00 PM		ICV1 reran for missed analytes from another work order. Pb passes in both runs.
ILCVL-160810	1	ICPMS_TWDOD	LCVL	R87549	8/10/2016 1:05:00 PM		
ICB1-160810	1	ICPMS_TWDOD	ICB	R87549	8/10/2016 1:11:00 PM		
1607294-09A	5	ICPMS_TSDOD1	SAMP	76670	8/10/2016 3:09:00 PM		
1607294-09A SD	25	ICPMS_TSDOD1	SD	76670	8/10/2016 3:15:00 PM		
1607294-09A PDS	5	ICPMS_TSDOD1	PDS	76670	8/10/2016 3:21:00 PM		
1607294-09A MS	5	ICPMS_TSDOD1	MS	76670	8/10/2016 3:27:00 PM		
1607294-09A MSD	5	ICPMS_TSDOD1	MSD	76670	8/10/2016 3:32:00 PM		S flag for Pb (High); R flag Pb; Verified from previous run.
CCV1-160810	1	ICPMS_TWDOD	CCV	R87549	8/10/2016 3:38:00 PM		
LCVL1-160810	1	ICPMS_TWDOD	LCVL	R87549	8/10/2016 3:50:00 PM		
CCB1-160810	1	ICPMS_TWDOD	CCB	R87549	8/10/2016 3:56:00 PM		
MB-76690	5	ICPMS_TSDOD1	MBLK	76690	8/10/2016 4:02:00 PM		
LCS-76690	5	ICPMS_TSDOD1	LCS	76690	8/10/2016 4:08:00 PM		
LCSD-76690	5	ICPMS_TSDOD1	LCSD	76690	8/10/2016 4:14:00 PM		
1607314-03A	5	ICPMS_TSDOD1	SAMP	76690	8/10/2016 4:26:00 PM		
1607314-03A SD	25	ICPMS_TSDOD1	SD	76690	8/10/2016 4:31:00 PM		
1607294-69A	5	ICPMS_TSDOD1	SAMP	76690	8/10/2016 4:56:00 PM		Rounds. jw 8/15/2016
1607294-70A	5	ICPMS_TSDOD1	SAMP	76690	8/10/2016 5:02:00 PM		~~S flag for INST Sc (High); Does not affect Pb.~~

Std ID	Std Name	Type	Exp. Date
MET-CCV-160804	ICPMS CCV 200/5000 PPB		02/02/2017
MET-H2CAL-1608	ICPMS High Cal2 2000ppb std 8		02/02/2017
MET-HCAL-16080	ICPMS High Cal 500ppb/10ppm s		02/02/2017
MET-ICV-160804	ICPMS ICV 100 ppb		02/02/2017
MET-IS-160511	INTERNAL STANDARD 1 PPM		11/09/2016
MET-L2CAL-16080	ICPMS Low Cal2 1/20ppb std 2		02/02/2017
MET-LCAL-160804	ICPMS Low Cal 10/200ppb std 3		02/02/2017
MET-LCAL10X-16	ICPMS Low Cal 10/200ppb std 4		02/02/2017
MET-LCAL5X-160	ICPMS Low Cal 10/200ppb std 5		02/02/2017
MET-LCVLSPIKE-	LCVL METALS SPIKE (100/500		11/07/2016
MET-MCAL-16080	ICPMS Mid Cal 250/5000ppb std		02/02/2017
MET-PA-160421	ICPMS PA FACTOR SOLUTION		10/20/2016
MET-PDS-160701-	10 PPM Ag+Sb PDS		01/01/2017
MET-PDS-160701-	10 PPM CUSTOM PDS SOLUTI		01/01/2017
MET-PDS-160701-	250 PPM Naturals+Al+Fe PDS		07/01/2017

Run ID: ICP-MS3_160810B **Run No.:** 87549

1607294-71A	5	ICPMS_TSDOD1	SAMP	76690	8/10/2016 5:08:00 PM		
1607294-72A	5	ICPMS_TSDOD1	SAMP	76690	8/10/2016 5:13:00 PM		
1607294-73A	5	ICPMS_TSDOD1	SAMP	76690	8/10/2016 5:19:00 PM		
1607294-74A	5	ICPMS_TSDOD1	SAMP	76690	8/10/2016 5:31:00 PM		
1607294-75A	5	ICPMS_TSDOD1	SAMP	76690	8/10/2016 5:37:00 PM		
1607314-01A	5	ICPMS_TSDOD1	SAMP	76690	8/10/2016 5:43:00 PM		
1607314-02A	5	ICPMS_TSDOD1	SAMP	76690	8/10/2016 5:49:00 PM		
1607314-03A PDS	5	ICPMS_TSDOD1	PDS	76690	8/10/2016 5:55:00 PM		
1607314-03A MS	5	ICPMS_TSDOD1	MS	76690	8/10/2016 6:00:00 PM		
1607314-03A MSD	5	ICPMS_TSDOD1	MSD	76690	8/10/2016 6:06:00 PM		
CCV2-160810	1	ICPMS_TWDOD	CCV	R87549	8/10/2016 6:12:00 PM		
LCVL2-160810	1	ICPMS_TWDOD	LCVL	R87549	8/10/2016 6:24:00 PM		
CCB2-160810	1	ICPMS_TWDOD	CCB	R87549	8/10/2016 6:30:00 PM		
1607314-04A	5	ICPMS_TSDOD1	SAMP	76690	8/10/2016 6:36:00 PM		
1607314-05A	5	ICPMS_TSDOD1	SAMP	76690	8/10/2016 6:42:00 PM		
1607314-06A	5	ICPMS_TSDOD1	SAMP	76690	8/10/2016 6:48:00 PM		
1607317-01A	5	ICPMS_TSDOD1	SAMP	76690	8/10/2016 6:54:00 PM		
1607317-02A	5	ICPMS_TSDOD1	SAMP	76690	8/10/2016 6:59:00 PM		
1607317-03A	5	ICPMS_TSDOD1	SAMP	76690	8/10/2016 7:11:00 PM		
1607317-04A	5	ICPMS_TSDOD1	SAMP	76690	8/10/2016 7:17:00 PM		
1607317-05A	5	ICPMS_TSDOD1	SAMP	76690	8/10/2016 7:23:00 PM		
1607317-06A	5	ICPMS_TSDOD1	SAMP	76690	8/10/2016 7:29:00 PM		
1607317-07A	5	ICPMS_TSDOD1	SAMP	76690	8/10/2016 7:35:00 PM		
CCV3-160810	1	ICPMS_TWDOD	CCV	R87549	8/10/2016 7:41:00 PM		
LCVL3-160810	1	ICPMS_TWDOD	LCVL	R87549	8/10/2016 7:53:00 PM		
CCB3-160810	1	ICPMS_TWDOD	CCB	R87549	8/10/2016 7:59:00 PM		
MB-76716	5	ICPMS_TSDOD1	MBLK	76716	8/10/2016 8:05:00 PM		
LCS-76716	5	ICPMS_TSDOD1	LCS	76716	8/10/2016 8:11:00 PM		
LCSD-76716	5	ICPMS_TSDOD1	LCSD	76716	8/10/2016 8:17:00 PM		
1607317-09A	5	ICPMS_TSDOD1	SAMP	76716	8/10/2016 8:30:00 PM		
1607317-09A SD	25	ICPMS_TSDOD1	SD	76716	8/10/2016 8:35:00 PM		
1607317-08A	5	ICPMS_TSDOD1	SAMP	76716	8/10/2016 8:41:00 PM		
1607317-10A	5	ICPMS_TSDOD1	SAMP	76716	8/10/2016 8:47:00 PM		
1607317-11A	5	ICPMS_TSDOD1	SAMP	76716	8/10/2016 8:53:00 PM		
1607317-12A	5	ICPMS_TSDOD1	SAMP	76716	8/10/2016 8:59:00 PM		

Std ID	Std Name	Type	Exp. Date
MET-CCV-160804	ICPMS CCV 200/5000 PPB		02/02/2017
MET-H2CAL-1608	ICPMS High Cal2 2000ppb std 8		02/02/2017
MET-HCAL-16080	ICPMS High Cal 500ppb/10ppm s		02/02/2017
MET-ICV-160804	ICPMS ICV 100 ppb		02/02/2017
MET-IS-160511	INTERNAL STANDARD 1 PPM		11/09/2016
MET-L2CAL-16080	ICPMS Low Cal2 1/20ppb std 2		02/02/2017
MET-LCAL-160804	ICPMS Low Cal 10/200ppb std 3		02/02/2017
MET-LCAL10X-16	ICPMS Low Cal 10/200ppb std 4		02/02/2017
MET-LCAL5X-160	ICPMS Low Cal 10/200ppb std 5		02/02/2017
MET-LCVLSPIKE-	LCVL METALS SPIKE (100/500		11/07/2016
MET-MCAL-16080	ICPMS Mid Cal 250/5000ppb std		02/02/2017
MET-PA-160421	ICPMS PA FACTOR SOLUTION		10/20/2016
MET-PDS-160701-	10 PPM Ag+Sb PDS		01/01/2017
MET-PDS-160701-	10 PPM CUSTOM PDS SOLUTI		01/01/2017
MET-PDS-160701-	250 PPM Naturals+Al+Fe PDS		07/01/2017

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Run ID: ICP-MS3_160810B **Run No.:** 87549

1607317-14A	5	ICPMS_TSDOD1	SAMP	76716	8/10/2016 9:05:00 PM		
1607317-15A	5	ICPMS_TSDOD1	SAMP	76716	8/10/2016 9:17:00 PM		
1607317-16A	5	ICPMS_TSDOD1	SAMP	76716	8/10/2016 9:23:00 PM		
1607317-17A	5	ICPMS_TSDOD1	SAMP	76716	8/10/2016 9:29:00 PM		
1607317-18A	5	ICPMS_TSDOD1	SAMP	76716	8/10/2016 9:35:00 PM		
1607317-09A PDS	5	ICPMS_TSDOD1	PDS	76716	8/10/2016 9:41:00 PM		
1607317-09A MS	5	ICPMS_TSDOD1	MS	76716	8/10/2016 9:46:00 PM		S flag for Pb (High).
1607317-09A MSD	5	ICPMS_TSDOD1	MSD	76716	8/10/2016 9:52:00 PM		S flag for Pb (High).
CCV4-160810	1	ICPMS_TWDOD	CCV	R87549	8/10/2016 9:58:00 PM		
LCVL4-160810	1	ICPMS_TWDOD	LCVL	R87549	8/10/2016 10:10:00 PM		
CCB4-160810	1	ICPMS_TWDOD	CCB	R87549	8/10/2016 10:17:00 PM		
1607317-19A	5	ICPMS_TSDOD1	SAMP	76716	8/10/2016 10:23:00 PM		
1607317-20A	5	ICPMS_TSDOD1	SAMP	76716	8/10/2016 10:29:00 PM		
1607317-21A	5	ICPMS_TSDOD1	SAMP	76716	8/10/2016 10:34:00 PM		
1607317-22A	5	ICPMS_TSDOD1	SAMP	76716	8/10/2016 10:40:00 PM		
1607317-23A	5	ICPMS_TSDOD1	SAMP	76716	8/10/2016 10:46:00 PM		
1607317-24A	5	ICPMS_TSDOD1	SAMP	76716	8/10/2016 10:58:00 PM		
1607317-25A	5	ICPMS_TSDOD1	SAMP	76716	8/10/2016 11:04:00 PM		
1607317-28A	5	ICPMS_TSDOD1	SAMP	76716	8/10/2016 11:10:00 PM		
1607317-29A	5	ICPMS_TSDOD1	SAMP	76716	8/10/2016 11:16:00 PM		
1607317-30A	5	ICPMS_TSDOD1	SAMP	76716	8/10/2016 11:22:00 PM		
CCV5-160810	1	ICPMS_TWDOD	CCV	R87549	8/10/2016 11:28:00 PM		
LCVL5-160810	1	ICPMS_TWDOD	LCVL	R87549	8/10/2016 11:40:00 PM		
CCB5-160810	1	ICPMS_TWDOD	CCB	R87549	8/10/2016 11:46:00 PM		
MB-76717	5	ICPMS_TSDOD1	MBLK	76717	8/10/2016 11:52:00 PM		
LCS-76717	5	ICPMS_TSDOD1	LCS	76717	8/10/2016 11:58:00 PM		
LCSD-76717	5	ICPMS_TSDOD1	LCSD	76717	8/11/2016 12:04:00 AM		
1607317-27A	5	ICPMS_TSDOD1	SAMP	76717	8/11/2016 12:17:00 AM		DNR - SD misprepared. See rerun of QC.
1607317-27A SD	25	ICPMS_TSDOD1	SD	76717	8/11/2016 12:23:00 AM		DNR
1607317-31A	5	ICPMS_TSDOD1	SAMP	76717	8/11/2016 12:29:00 AM		
ICSA-160810	1	ICPMS_TWDOD	ICSA	R87549	8/11/2016 12:35:00 AM		
ICSAB-160810	1	ICPMS_TWDOD	ICSB	R87549	8/11/2016 12:41:00 AM		
1607317-32A	5	ICPMS_TSDOD1	SAMP	76717	8/11/2016 12:59:00 AM		
1607317-33A	5	ICPMS_TSDOD1	SAMP	76717	8/11/2016 1:05:00 AM		
1607317-34A	5	ICPMS_TSDOD1	SAMP	76717	8/11/2016 1:11:00 AM		

Std ID	Std Name	Type	Exp. Date
MET-CCV-160804	ICPMS CCV 200/5000 PPB		02/02/2017
MET-H2CAL-1608	ICPMS High Cal2 2000ppb std 8		02/02/2017
MET-HCAL-16080	ICPMS High Cal 500ppb/10ppm s		02/02/2017
MET-ICV-160804	ICPMS ICV 100 ppb		02/02/2017
MET-IS-160511	INTERNAL STANDARD 1 PPM		11/09/2016
MET-L2CAL-16080	ICPMS Low Cal2 1/20ppb std 2		02/02/2017
MET-LCAL-160804	ICPMS Low Cal 10/200ppb std 3		02/02/2017
MET-LCAL10X-16	ICPMS Low Cal 10/200ppb std 4		02/02/2017
MET-LCAL5X-160	ICPMS Low Cal 10/200ppb std 5		02/02/2017
MET-LCVLSPIKE-	LCVL METALS SPIKE (100/500		11/07/2016
MET-MCAL-16080	ICPMS Mid Cal 250/5000ppb std		02/02/2017
MET-PA-160421	ICPMS PA FACTOR SOLUTION		10/20/2016
MET-PDS-160701-	10 PPM Ag+Sb PDS		01/01/2017
MET-PDS-160701-	10 PPM CUSTOM PDS SOLUTI		01/01/2017
MET-PDS-160701-	250 PPM Naturals+Al+Fe PDS		07/01/2017

DHL Analytical, Inc.

Run ID: ICP-MS3_160810B **Run No.:** 87549

1607317-35A	5	ICPMS_TSDOD1	SAMP	76717	8/11/2016 1:16:00 AM		
1607317-36A	5	ICPMS_TSDOD1	SAMP	76717	8/11/2016 1:29:00 AM		
1607317-37A	5	ICPMS_TSDOD1	SAMP	76717	8/11/2016 1:35:00 AM		
1607317-38A	5	ICPMS_TSDOD1	SAMP	76717	8/11/2016 1:40:00 AM		
1607337-01A	5	ICPMS_TSDOD1	SAMP	76717	8/11/2016 1:46:00 AM		
1607317-27A PDS	5	ICPMS_TSDOD1	PDS	76717	8/11/2016 1:52:00 AM		DNR
1607317-27A MS	5	ICPMS_TSDOD1	MS	76717	8/11/2016 1:58:00 AM		S flag for Pb (High). DNR
1607317-27A MSD	5	ICPMS_TSDOD1	MSD	76717	8/11/2016 2:04:00 AM		S flag for Pb (High). DNR
CCV6-160810	1	ICPMS_TWDOD	CCV	R87549	8/11/2016 2:10:00 AM		
LCVL-160810	1	ICPMS_TWDOD	LCVL	R87549	8/11/2016 2:22:00 AM		
CCB6-160810	1	ICPMS_TWDOD	CCB	R87549	8/11/2016 2:28:00 AM		
1607337-02A	5	ICPMS_TSDOD1	SAMP	76717	8/11/2016 2:34:00 AM		
1607337-03A	5	ICPMS_TSDOD1	SAMP	76717	8/11/2016 2:40:00 AM		
1607337-04A	5	ICPMS_TSDOD1	SAMP	76717	8/11/2016 2:46:00 AM		
1607337-05A	5	ICPMS_TSDOD1	SAMP	76717	8/11/2016 2:52:00 AM		
1607337-06A	5	ICPMS_TSDOD1	SAMP	76717	8/11/2016 2:58:00 AM		
1607337-07A	5	ICPMS_TSDOD1	SAMP	76717	8/11/2016 3:10:00 AM		
1607337-08A	5	ICPMS_TSDOD1	SAMP	76717	8/11/2016 3:16:00 AM		
1607337-09A	5	ICPMS_TSDOD1	SAMP	76717	8/11/2016 3:22:00 AM		
1607337-11A	5	ICPMS_TSDOD1	SAMP	76717	8/11/2016 3:28:00 AM		
1607337-12A	5	ICPMS_TSDOD1	SAMP	76717	8/11/2016 3:34:00 AM		
CCV7-160810	1	ICPMS_TWDOD	CCV	R87549	8/11/2016 3:40:00 AM		
LCVL7-160810	1	ICPMS_TWDOD	LCVL	R87549	8/11/2016 3:52:00 AM		
CCB7-160810	1	ICPMS_TWDOD	CCB	R87549	8/11/2016 3:58:00 AM		

Std ID	Std Name	Type	Exp. Date
MET-CCV-160804	ICPMS CCV 200/5000 PPB		02/02/2017
MET-H2CAL-1608	ICPMS High Cal2 2000ppb std 8		02/02/2017
MET-HCAL-16080	ICPMS High Cal 500ppb/10ppm s		02/02/2017
MET-ICV-160804	ICPMS ICV 100 ppb		02/02/2017
MET-IS-160511	INTERNAL STANDARD 1 PPM		11/09/2016
MET-L2CAL-16080	ICPMS Low Cal2 1/20ppb std 2		02/02/2017
MET-LCAL-160804	ICPMS Low Cal 10/200ppb std 3		02/02/2017
MET-LCAL10X-16	ICPMS Low Cal 10/200ppb std 4		02/02/2017
MET-LCAL5X-160	ICPMS Low Cal 10/200ppb std 5		02/02/2017
MET-LCVLSPIKE-	LCVL METALS SPIKE (100/500		11/07/2016
MET-MCAL-16080	ICPMS Mid Cal 250/5000ppb std		02/02/2017
MET-PA-160421	ICPMS PA FACTOR SOLUTION		10/20/2016
MET-PDS-160701-	10 PPM Ag+Sb PDS		01/01/2017
MET-PDS-160701-	10 PPM CUSTOM PDS SOLUTI		01/01/2017
MET-PDS-160701-	250 PPM Naturals+Al+Fe PDS		07/01/2017

	Method	Type	Vial	Data File	Sample	Comment	Dil/Lvl	ISTD Conc	Action on Failure	Skip	Result
1		Keyword		CALBEG	Start of CALIB						
2	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1101		BLANK	CAL ICPMS_TW	1.000				
3	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1102		BLANK	CAL ICPMS_TW	1.000				
4	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1103		BLANK	CAL ICPMS_TW	1.000				
5	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1104		BLANK	CAL ICPMS_TW	1.000				
6	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		BLANK	CAL ICPMS_TW	1.000				
7	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalBlk	2101		BLANK STD 1	CAL ICPMS_TW	Level 1				
8	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalStd	2102		L2-160810	CAL ICPMS_TW	Level 2				
9	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalStd	2103		L-160810	CAL ICPMS_TW	Level 3				
10	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalStd	2104		10X-160810	CAL ICPMS_TW	Level 4				
11	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalStd	2105		5X-160810	CAL ICPMS_TW	Level 5				
12	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalStd	2106		2X-160810	CAL ICPMS_TW	Level 6				
13	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalStd	2107		H-160810	CAL ICPMS_TW	Level 7				
14	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalStd	2108		H2-160810	CAL ICPMS_TW	Level 8				
15	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1104		BLANK	CAL ICPMS_TW	1.000				
16	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		BLANK	CAL ICPMS_TW	1.000				
17		Keyword		CALEND	End of CALIB						
18		Keyword		ICSBEG	Start of ICS						
19	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	ICS-A	2109		ICSA-160810	ICSAICPMS_TW	1.000				
20	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	ICS-AB	2110		ICSAB-160810	ICSBICPMS_TW	1.000				
21	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1103		RINSE	CAL ICPMS_TW	1.000				
22	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1104		RINSE	CAL ICPMS_TW	1.000				
23		Keyword		ICSEND	End of ICS						
24		Keyword		SMPLBEG	Start of SMPL						
25	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	ICV	2111		ICV1-160810	ICV ICPMS_TW	1.000				

	Method	Type	Vial	Data File	Sample	Comment	Dil/Lvl	ISTD Conc	Action on Failure	Skip	Result
26	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	ICB	1104		ICB1-160810	ICB ICPMS_TW	1.000				
27	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	ICV	2510		ICV1-160810	ICV ICPMS_TW	1.000				
28	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCVL5	2112		ILCVL-160810	LCVLICPMS_TW	1.000				
29	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	ICB	1104		ICB1-160810	ICB ICPMS_TW	1.000				
30	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	PB W	2201		MB-76606	MBLK200.8_EPA	1.000				
31	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCS_200	2202		LCS-76606	LCS 200.8_EPA	1.000				
32	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCS_200	2203		LCSD-76606	LCSD200.8_EPA	1.000				
33	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1101		RINSE	CCB ICPMS_TW	1.000				
34	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	AllRef	2204		1607168-22A	SAMP200.8_EPA	1.000				
35	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	DT	2205		1607168-22A SD	SD_200.8_EPA	5.000				
36	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	2206		1607168-21A	SAMP200.8_EPA	1.000				
37	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	2207		1607168-23A	SAMP200.8_EPA	1.000				
38	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	2208		1607168-24A	SAMP200.8_EPA	1.000				
39	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	2209		1607168-25A	SAMP200.8_EPA	1.000				
40	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	2210		1607168-26A	SAMP200.8_EPA	1.000				
41	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	2211		1607168-27A	SAMP200.8_EPA	1.000				
42	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	2212		1607168-28A	SAMP200.8_EPA	1.000				
43	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	PDS	2301		1607168-22A PDS	PDS 200.8_EPA	1.000				
44	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	MS_W	2302		1607168-22A MS	MS_200.8_EPA	1.000				
45	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	MS_W	2303		1607168-22A MSD	MSD 200.8_EPA	1.000				
46	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1101		RINSE	CCB ICPMS_TW	1.000				
47	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	AllRef	2304		1607294-09A	SAMPICPMS_TSDOD1	5.000				
48	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	DT	2305		1607294-09A SD	SD_ICPMS_TSDOD1	25.00				

	Method	Type	Vial	Data File	Sample	Comment	Dil/Lvl	ISTD Conc	Action on Failure	Skip	Result
49	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	PDS	2306		1607294-09A PDS	PDS ICPMS_TSDOD1	5.000				
50	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	MS_S	2307		1607294-09A MS	MS_ICPMS_TSDOD1	5.000				
51	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	MS_S	2308		1607294-09A MSD	MSD ICPMS_TSDOD1	5.000				
52	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	1307		CCV1-160810	CCV ICPMS_TW	1.000				
53	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1104		CCB1-160810	CCB ICPMS_TW	1.000				
54	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCVL5	2512		LCVL1-160810	LCVLICPMS_TW	1.000				
55	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		CCB1-160810	CCB ICPMS_TW	1.000				
56	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	PB	3101		MB-76690	MBLKICPMS_TSDOD1	5.000				
57	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCS	3102		LCS-76690	LCS ICPMS_TSDOD1	5.000				
58	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCS	3103		LCSD-76690	LCSDICPMS_TSDOD1	5.000				
59	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1101		RINSE	CCB ICPMS_TW	1.000				
60	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	AllRef	3104		1607314-03A	SAMPICPMS_TSDOD1	5.000				
61	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	DT	3105		1607314-03A SD	SD_ICPMS_TSDOD1	25.00				
62	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3106		1607294-69A	SAMPICPMS_TSDOD1	5.000				
63	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3107		1607294-70A	SAMPICPMS_TSDOD1	5.000				
64	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3108		1607294-71A	SAMPICPMS_TSDOD1	5.000				
65	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3109		1607294-72A	SAMPICPMS_TSDOD1	5.000				
66	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3110		1607294-73A	SAMPICPMS_TSDOD1	5.000				
67	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1101		RINSE	CCB ICPMS_TW	1.000				
68	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3111		1607294-74A	SAMPICPMS_TSDOD1	5.000				
69	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3112		1607294-75A	SAMPICPMS_TSDOD1	5.000				
70	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3201		1607314-01A	SAMPICPMS_TSDOD1	5.000				
71	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3202		1607314-02A	SAMPICPMS_TSDOD1	5.000				

	Method	Type	Vial	Data File	Sample	Comment	Dil/Lvl	ISTD Conc	Action on Failure	Skip	Result
72	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	PDS	3203		1607314-03A PDS	PDS ICPMS_TSDOD1	5.000				
73	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	MS_S	3204		1607314-03A MS	MS_ICPMS_TSDOD1	5.000				
74	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	MS_S	3205		1607314-03A MSD	MSD ICPMS_TSDOD1	5.000				
75	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	1307		CCV2-160810	CCV ICPMS_TW	1.000				
76	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1104		CCB2-160810	CCB ICPMS_TW	1.000				
77	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCVL5	2112		LCVL2-160810	LCVLICPMS_TW	1.000				
78	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		CCB2-160810	CCB ICPMS_TW	1.000				
79	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3206		1607314-04A	SAMPICPMS_TSDOD1	5.000				
80	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3207		1607314-05A	SAMPICPMS_TSDOD1	5.000				
81	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3208		1607314-06A	SAMPICPMS_TSDOD1	5.000				
82	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3209		1607317-01A	SAMPICPMS_TSDOD1	5.000				
83	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3210		1607317-02A	SAMPICPMS_TSDOD1	5.000				
84	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1101		RINSE	CCB ICPMS_TW	1.000				
85	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3211		1607317-03A	SAMPICPMS_TSDOD1	5.000				
86	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3212		1607317-04A	SAMPICPMS_TSDOD1	5.000				
87	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3301		1607317-05A	SAMPICPMS_TSDOD1	5.000				
88	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3302		1607317-06A	SAMPICPMS_TSDOD1	5.000				
89	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3303		1607317-07A	SAMPICPMS_TSDOD1	5.000				
90	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	1307		CCV3-160810	CCV ICPMS_TW	1.000				
91	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1104		CCB3-160810	CCB ICPMS_TW	1.000				
92	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCVL5	2112		LCVL3-160810	LCVLICPMS_TW	1.000				
93	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		CCB3-160810	CCB ICPMS_TW	1.000				
94	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	PB	2309		MB-76716	MBLKICPMS_TSDOD1	5.000				

	Method	Type	Vial	Data File	Sample	Comment	Dil/Lvl	ISTD Conc	Action on Failure	Skip	Result
95	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCS	2310		LCS-76716	LCS ICPMS_TSDOD1	5.000				
96	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCS	2311		LCSD-76716	LCSDICPMS_TSDOD1	5.000				
97	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1101		RINSE	CCB ICPMS_TW	1.000				
98	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	AllRef	2312		1607317-09A	SAMPICPMS_TSDOD1	5.000				
99	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	DT	2401		1607317-09A SD	SD ICPMS_TSDOD1	25.00				
100	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2402		1607317-08A	SAMPICPMS_TSDOD1	5.000				
101	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2403		1607317-10A	SAMPICPMS_TSDOD1	5.000				
102	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2404		1607317-11A	SAMPICPMS_TSDOD1	5.000				
103	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2405		1607317-12A	SAMPICPMS_TSDOD1	5.000				
104	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2406		1607317-14A	SAMPICPMS_TSDOD1	5.000				
105	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1101		RINSE	CCB ICPMS_TW	1.000				
106	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2407		1607317-15A	SAMPICPMS_TSDOD1	5.000				
107	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2408		1607317-16A	SAMPICPMS_TSDOD1	5.000				
108	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2409		1607317-17A	SAMPICPMS_TSDOD1	5.000				
109	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2410		1607317-18A	SAMPICPMS_TSDOD1	5.000				
110	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	PDS	2411		1607317-09A PDS	PDS ICPMS_TSDOD1	5.000				
111	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	MS_S	2412		1607317-09A MS	MS ICPMS_TSDOD1	5.000				
112	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	MS_S	2501		1607317-09A MSD	MSD ICPMS_TSDOD1	5.000				
113	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	1307		CCV4-160810	CCV ICPMS_TW	1.000				
114	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1104		CCB4-160810	CCB ICPMS_TW	1.000				
115	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCVL5	2112		LCVL4-160810	LCVLICPMS_TW	1.000				
116	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		CCB4-160810	CCB ICPMS_TW	1.000				
117	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2502		1607317-19A	SAMPICPMS_TSDOD1	5.000				

	Method	Type	Vial	Data File	Sample	Comment	Dil/Lvl	ISTD Conc	Action on Failure	Skip	Result
118	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2503		1607317-20A	SAMPICPMS_TSDOD1	5.000				
119	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2504		1607317-21A	SAMPICPMS_TSDOD1	5.000				
120	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2505		1607317-22A	SAMPICPMS_TSDOD1	5.000				
121	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2506		1607317-23A	SAMPICPMS_TSDOD1	5.000				
122	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1101		RINSE	CCB ICPMS_TW	1.000				
123	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2507		1607317-24A	SAMPICPMS_TSDOD1	5.000				
124	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2508		1607317-25A	SAMPICPMS_TSDOD1	5.000				
125	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2509		1607317-28A	SAMPICPMS_TSDOD1	5.000				
126	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3305		1607317-29A	SAMPICPMS_TSDOD1	5.000				
127	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3306		1607317-30A	SAMPICPMS_TSDOD1	5.000				
128	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	1307		CCV5-160810	CCV ICPMS_TW	1.000				
129	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		CCB5-160810	CCB ICPMS_TW	1.000				
130	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCVL5	2512		LCVL5-160810	LCVLICPMS_TW	1.000				
131	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		CCB5-160810	CCB ICPMS_TW	1.000				
132	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	PB	3401		MB-76717	MBLKICPMS_TSDOD1	5.000				
133	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCS	3402		LCS-76717	LCS ICPMS_TSDOD1	5.000				
134	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCS	3403		LCSD-76717	LCSDICPMS_TSDOD1	5.000				
135	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1101		RINSE	CCB ICPMS_TW	1.000				
136	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	AllRef	3404		1607317-27A	SAMPICPMS_TSDOD1	5.000				
137	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	DT	3405		1607317-27A SD	SD ICPMS_TSDOD1	25.00				
138	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3406		1607317-31A	SAMPICPMS_TSDOD1	5.000				
139	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3407		1607317-32A	SAMPICPMS_TSDOD1	5.000				
140	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3408		1607317-33A	SAMPICPMS_TSDOD1	5.000				

	Method	Type	Vial	Data File	Sample	Comment	Dil/Lvl	ISTD Conc	Action on Failure	Skip	Result
141	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3409		1607317-34A	SAMPICPMS_TSDOD1	5.000				
142	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3410		1607317-35A	SAMPICPMS_TSDOD1	5.000				
143	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1101		RINSE	CCB ICPMS_TW	1.000				
144	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3411		1607317-36A	SAMPICPMS_TSDOD1	5.000				
145	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3412		1607317-37A	SAMPICPMS_TSDOD1	5.000				
146	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3501		1607317-38A	SAMPICPMS_TSDOD1	5.000				
147	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3502		1607337-01A	SAMPICPMS_TSDOD1	5.000				
148	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	PDS	3503		1607317-27A PDS	PDS ICPMS_TSDOD1	5.000				
149	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	MS_S	3504		1607317-27A MS	MS_ICPMS_TSDOD1	5.000				
150	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	MS_S	3505		1607317-27A MSD	MSD ICPMS_TSDOD1	5.000				
151	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	1307		CCV6-160810	CCV ICPMS_TW	1.000				
152	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1104		CCB6-160810	CCB ICPMS_TW	1.000				
153	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCVL5	2112		LCVL-160810	LCVLICPMS_TW	1.000				
154	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		CCB6-160810	CCB ICPMS_TW	1.000				
155	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3506		1607337-02A	SAMPICPMS_TSDOD1	5.000				
156	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3507		1607337-03A	SAMPICPMS_TSDOD1	5.000				
157	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3508		1607337-04A	SAMPICPMS_TSDOD1	5.000				
158	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3509		1607337-05A	SAMPICPMS_TSDOD1	5.000				
159	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3510		1607337-06A	SAMPICPMS_TSDOD1	5.000				
160	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1101		RINSE	CCB ICPMS_TW	1.000				
161	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3511		1607337-07A	SAMPICPMS_TSDOD1	5.000				
162	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3512		1607337-08A	SAMPICPMS_TSDOD1	5.000				
163	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3308		1607337-09A	SAMPICPMS_TSDOD1	5.000				

	Method	Type	Vial	Data File	Sample	Comment	Dil/Lvl	ISTD Conc	Action on Failure	Skip	Result
164	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3309		1607337-11A	SAMPICPMS_TSDOD1	5.000				
165	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3310		1607337-12A	SAMPICPMS_TSDOD1	5.000				
166	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	1307		CCV7-160810	CCV ICPMS_TW	1.000				
167	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		CCB7-160810	CCB ICPMS_TW	1.000				
168	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCVL5	2512		LCVL7-160810	LCVLICPMS_TW	1.000				
169	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		CCB7-160810	CCB ICPMS_TW	1.000				
170	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1101		RINSE	CCB ICPMS_TW	1.000				
171	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1102		RINSE	CCB ICPMS_TW	1.000				
172	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1103		RINSE	CCB ICPMS_TW	1.000				
173	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1104		RINSE	CCB ICPMS_TW	1.000				
174	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		RINSE	CCB ICPMS_TW	1.000				
175	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1101		RINSE	CCB ICPMS_TW	1.000				
176	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1102		RINSE	CCB ICPMS_TW	1.000				
177	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1103		RINSE	CCB ICPMS_TW	1.000				
178		Keyword		StandBy							
179		Keyword		SMPLEND	End of SMPL						
180		Keyword		End	End of Sequence						
181		Keyword		CCVBEG	Start of CCV						
182		Keyword		CCVEND	End of CCV						
183		Keyword		BLKBEG	Start of BLANK						
184		Keyword		BLKEND	End of BLANK						
185		Keyword		ERRBEG	Start of ERRTERM						
186		Keyword		ERREND	End of ERRTERM						

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **8/5/2016 10:59:20 AM**
Digestion:
Prep End Date:

Prep Batch **76690** Prep Code: **3050_IDOD** Technician: **Cassie Van Dyke** Prep Factor Units: **mL/g**

Equipment List
Hot Block #3
Thermometer #71
Balance #20
Pipette #P-01
Pipette#-P-09

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607294-69A	Soil		1.08	50	50.000	1 of 1	
1607294-70A	Soil		1.04	50	50.000	1 of 1	
1607294-71A	Soil		1.01	50	50.000	1 of 1	
1607294-72A	Soil		1.08	50	50.000	1 of 1	
1607294-73A	Soil		1.02	50	50.000	1 of 1	
1607294-74A	Soil		1.15	50	50.000	1 of 1	
1607294-75A	Soil		1.10	50	50.000	1 of 1	
1607314-01A	Soil		1.01	50	50.000	1 of 1	
1607314-02A	Soil		1.13	50	50.000	1 of 1	
1607314-03A	Soil		1.17	50	50.000	3 of 3	
1607314-03A MS	Soil		1.03	50	50.000	3 of 3	
1607314-03A MSD	Soil		1.08	50	50.000	3 of 3	
1607314-04A	Soil		1.05	50	50.000	1 of 1	
1607314-05A	Soil		1.00	50	50.000	1 of 1	
1607314-06A	Soil		1.09	50	50.000	1 of 1	
1607317-01A	Soil		1.10	50	50.000	1 of 1	
1607317-02A	Soil		1.06	50	50.000	1 of 1	
1607317-03A	Soil		1.07	50	50.000	1 of 1	
1607317-04A	Soil		1.03	50	50.000	1 of 1	
1607317-05A	Soil		1.05	50	50.000	1 of 1	
1607317-06A	Soil		1.13	50	50.000	1 of 1	
1607317-07A	Soil		1.08	50	50.000	1 of 1	
LCS-76690	Soil		1	50	50.000	of	
LCSD-76690	Soil		1	50	50.000	of	
MB-76690	Soil		1	50	50.000	of	

Number	Reagent Name	Amt	Units	Exp. Da
10056	Digestion Vessels	1	vessel	02/10/2026
10527	Hydrogen Peroxide, 30%	3	ml	07/09/2017
10543	Nitric Acid (Trace Metals)	10	ml	01/10/2017
10544	Hydrochloric Acid (trace metal grade)	5	ml	01/10/2017

Spk ID	Spike Name	SampType	Amt (mL or g)	Exp. Date
MET-150914-10	AL PRIMARY STD 1000 PPM	LCS/MS/MSD	0.25	10/01/2016
MET-150914-9	FE PRIMARY STD 1000 PPM	LCS/MS/MSD	0.25	10/01/2016
MET-SPIKE-160701-3	2500 PPM NATURALS SPIKE	LCS/MS/MSD	0.5	09/29/2016
MET-SPIKE-160715-4B	50 PPM Sb+Ag CAL	LCS/MS/MSD	1	10/13/2016
MET-SPIKE-160715-5B	50 PPM Custom+Sn,Ti,B,Mo,Sr CAL	LCS/MS/MSD	1	10/13/2016

12:29-12:39
12:40-14:40
15:00-17:00
17:32-17:47

REVIEWED BY
By Janice Whitt at 10:34:35 AM, 8/15/2016

8/5/16

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **7/26/2016 5:30:00 PM**
Digestion: **Start: 7/26/2016 6:40:00 PM / Stop: 7/29/2016 1:40:00 PM**
Prep End Date: **7/29/2016 3:00:00 PM**

Prep Batch **76518** Prep Code: **ISM2MM_PREP** Technician: **Jennifer Barker** Prep Factor Units: **mL/**

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607294-66A	Soil		0	0	#Num!	1 of 1	
	Sieve only hard clay						
1607294-67A	Soil		0	0	#Num!	1 of 1	
	Sieve only hard clay						
1607294-68A	Soil		0	0	#Num!	1 of 1	
	SS						
1607294-69A	Soil		0	0	#Num!	1 of 1	
	SS						
1607294-70A	Soil		0	0	#Num!	1 of 1	
	Sieve only hard clay						
1607294-71A	Soil		0	0	#Num!	1 of 1	
	Sieve only hard clay						
1607294-72A	Soil		0	0	#Num!	1 of 1	
	SS						
1607294-73A	Soil		0	0	#Num!	1 of 1	
	SS						
1607294-74A	Soil		0	0	#Num!	1 of 1	
	SS						
1607294-75A	Soil		0	0	#Num!	1 of 1	
	Sieve only hard clay						

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By Janice Whitt at 10:35:45 AM, 8/15/2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **7/28/2016 12:00:00 PM**
Digestion: **Start: 7/28/2016 12:10:00 PM / Stop: 7/29/2016 1:30:00 PM**
Prep End Date: **7/29/2016 3:00:00 PM**

Prep Batch **76539** Prep Code: **ISM2MM_PREP** Technician: **Jennifer Barker** Prep Factor Units: **mL/**

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607314-01A SS	Soil		0	0	#Num!	1 of 1	
1607314-02A SS	Soil		0	0	#Num!	1 of 1	
1607314-03A SS MS/MSD	Soil		0	0	#Num!	of 3	
1607314-04A SS	Soil		0	0	#Num!	1 of 1	
1607314-05A SS	Soil		0	0	#Num!	1 of 1	
1607314-06A SS	Soil		0	0	#Num!	1 of 1	

REVIEWED BY
By Janice Whitt at 10:35:47 AM, 8/15/2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **7/28/2016 4:31:01 PM**
Digestion: **Start: 7/28/2016 4:45:00 PM / Stop: 8/1/2016 10:00:00 AM**
Prep End Date: **8/2/2016 10:00:00 AM**

Prep Batch **76551** Prep Code: **ISM2MM_PREP** Technician: **Jennifer Barker**

Prep Factor Units: **mL/**

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607317-01A	Soil		0	0	#Num!	1 of 1	
SS							
1607317-02A	Soil		0	0	#Num!	1 of 1	
SS							
1607317-03A	Soil		0	0	#Num!	1 of 1	
Sieve only hard clay							
1607317-04A	Soil		0	0	#Num!	1 of 1	
Sieve only hard clay							
1607317-05A	Soil		0	0	#Num!	1 of 1	
SS							
1607317-06A	Soil		0	0	#Num!	1 of 1	
SS							
1607317-07A	Soil		0	0	#Num!	1 of 1	
Sieve only hard clay							
1607317-08A	Soil		0	0	#Num!	1 of 1	
Sieve only hard clay							
1607317-09A	Soil		0	0	#Num!	of 3	
SS MS/MSD							
1607317-10A	Soil		0	0	#Num!	1 of 1	
SS							
1607317-11A	Soil		0	0	#Num!	1 of 1	
Sieve only hard clay							
1607317-12A	Soil		0	0	#Num!	1 of 1	
Sieve only hard clay							
1607317-14A	Soil		0	0	#Num!	1 of 1	
SS							

REVIEWED BY
By Janice Whitt at 10:36:27 AM, 8/15/2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **7/28/2016 4:31:01 PM**
Digestion: **Start: 7/28/2016 4:45:00 PM / Stop: 8/1/2016 10:00:00 AM**
Prep End Date: **8/2/2016 10:00:00 AM**

Prep Batch **76551** Prep Code: **ISM2MM_PREP** Technician: **Jennifer Barker**

Prep Factor Units: **mL/**

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607317-15A	Soil		0	0	#Num!	1 of 1	
SS							
1607317-16A	Soil		0	0	#Num!	1 of 1	
SS							
1607317-17A	Soil		0	0	#Num!	1 of 1	
SS							
1607317-18A	Soil		0	0	#Num!	1 of 1	
SS							
1607317-19A	Soil		0	0	#Num!	1 of 1	
SS							
1607317-20A	Soil		0	0	#Num!	1 of 1	
SS							
1607317-21A	Soil		0	0	#Num!	1 of 1	
SS							
1607317-22A	Soil		0	0	#Num!	1 of 1	
SS							
1607317-23A	Soil		0	0	#Num!	1 of 1	
SS							
1607317-24A	Soil		0	0	#Num!	1 of 1	
SS							
1607317-25A	Soil		0	0	#Num!	1 of 1	
SS							
1607317-27A	Soil		0	0	#Num!	of 3	
SS MS/MSD							
1607317-28A	Soil		0	0	#Num!	1 of 1	
SS							

REVIEWED BY
By Janice Whitt at 10:36:37 AM, 8/15/2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **7/28/2016 4:31:01 PM**
Digestion: **Start: 7/28/2016 4:45:00 PM / Stop: 8/1/2016 10:00:00 AM**
Prep End Date: **8/2/2016 10:00:00 AM**

Prep Batch **76551** Prep Code: **ISM2MM_PREP** Technician: **Jennifer Barker**

Prep Factor Units: **mL/**

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607317-29A	Soil		0	0	#Num!	1 of 1	
SS							
1607317-30A	Soil		0	0	#Num!	1 of 1	
Sieve only hard clay							
1607317-31A	Soil		0	0	#Num!	1 of 1	
SS							
1607317-32A	Soil		0	0	#Num!	1 of 1	
SS							
1607317-33A	Soil		0	0	#Num!	1 of 1	
SS							
1607317-34A	Soil		0	0	#Num!	1 of 1	
Sieve only hard clay							
1607317-35A	Soil		0	0	#Num!	1 of 1	
SS							
1607317-36A	Soil		0	0	#Num!	1 of 1	
SS							
1607317-37A	Soil		0	0	#Num!	1 of 1	
SS							
1607317-38A	Soil		0	0	#Num!	1 of 1	
Sieve only hard clay							

REVIEWED BY
By Janice Whitt at 10:36:40 AM, 8/15/2016

MECHANICAL VOLUMETRIC PIPETTE VOLUME DAILY CHECK - DOD QSM 5.0

ANALYST:	SP	**BALANCE #:**	26	
TEST DATE:	08/05/2016	**Water is at Room Temperatue (70-73°F) / (21-23°C)**		
PIPETTER LAB ID:	P-01, P-09	**WATER TEMP (°C):**	**21-23°C**	
TEST VOLUME:	See Below	**WATER DENSITY:**	**0.998**	**(0.9980-0.9976)**

REFERENCE:	DoD QSM 5.0
# of REPLICATES:	3
LABWARE TYPE:	MECHANICAL VOLUMETRIC PIPETTE
FREQUENCY:	DAILY BEFORE USE
MEAN CRITERIA:	± 2% OF NOMINAL VOLUME (VOLUME OF USE/TEST VOLUME)
RSD CRITERIA:	< 1% OF NOMINAL VOLUME (BASED ON MINIMUM OF 3 REPLICATE MEASUREMENTS)

1) RECORD ROOM AND WATER TEMPERATURE	**% TEST VOL = Volume of H2O at °C/Test Volume * 100**
2) TARE VESSEL ON BALANCE. ADD TEST VOLUME.	**%RSD = STDEV (Mean Volume)/AVERAGE (Mean Volume) *100**
3) WEIGH 3 REPLICATES AT THE TEST VOLUME.	
4) DETERMINE TOTAL WT.	
5) CALCULATE VOLUME OF H2O AT °C (in mL)	**VOLUME OF H2O AT °C = TOTAL WT / WATER DENSITY**

					BIAS	PRECISION
PIPETTE ID: P-01	**TEST VOLUME (mL)**	**TOTAL WT (g)**	**Volume of H_2O at °C**	**% TEST VOL (98-102%)**	**MEAN CRITERIA (± 2%)**	**% RSD Calculated**
1	**5.00**	5.0031	5.0131	**100.26**	**PASS**	**RSD MUST BE ≤ 1% OF TEST VOLUME VALUE**
2		4.9858	4.9958	**99.92**		
3		4.9726	4.9826	**99.65**		
AVERAGE (MEAN)		**4.987**	**4.997**	**99.94**		**0.307**
						PASS

PIPETTE ID: P-09	**TEST VOLUME (mL)**	**TOTAL WT (g)**	**Volume of H_2O at °C**	**% TEST VOL (98-102%)**	**MEAN CRITERIA (± 2%)**	**% RSD Calculated**
1	**0.20**	0.2014	0.2018	**100.90**	**PASS**	**RSD MUST BE ≤ 1% OF TEST VOLUME VALUE**
2		0.2021	0.2025	**101.25**		
3		0.2021	0.2025	**101.25**		
AVERAGE (MEAN)		**0.202**	**0.202**	**101.14**		**0.200**
						PASS

PIPETTE ID:	**TEST VOLUME (mL)**	**TOTAL WT (g)**	**Volume of H_2O at °C**	**% TEST VOL (98-102%)**	**MEAN CRITERIA (± 2%)**	**% RSD Calculated**
1						**RSD MUST BE ≤ 1% OF TEST VOLUME VALUE**
2						
3						
AVERAGE (MEAN)						

Analyst / Date 8/5/16

REVIEWED BY
By Janice Whitt at 10:36:43 AM, 8/15/2016

Review and Approved / Date

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **8/5/2016 10:59:20 AM**
Digestion: **Start: 8/5/2016 12:29:00 PM / Stop: 8/5/2016 5:47:00 PM**
Prep End Date: **8/5/2016 6:04:00 PM**

Prep Batch **76690** Prep Code: **3050_IDOD** Technician: **Cassie Van Dyke**

Prep Factor Units: **mL/g**

Equipment List

- Hot Block #3
- Thermometer #71
- Balance #20
- Pipette #P-01
- Pipette#-P-09

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607294-69A	Soil		1.08	50	46.296	1 of 1	
1607294-70A	Soil		1.04	50	48.077	1 of 1	
1607294-71A	Soil		1.01	50	49.505	1 of 1	
1607294-72A	Soil		1.08	50	46.296	1 of 1	
1607294-73A	Soil		1.02	50	49.020	1 of 1	
1607294-74A	Soil		1.15	50	43.478	1 of 1	
1607294-75A	Soil		1.1	50	45.455	1 of 1	
1607314-01A	Soil		1.01	50	49.505	1 of 1	
1607314-02A	Soil		1.13	50	44.248	1 of 1	
1607314-03A	Soil		1.17	50	42.735	of 3	
1607314-03A MS	Soil		1.03	50	48.544	of	
1607314-03A MSD	Soil		1.08	50	46.296	of	
1607314-03A PDS	Soil		1.17	50	42.735	of	
1607314-03A SD	Soil		1.17	50	42.735	of	
1607314-04A	Soil		1.05	50	47.619	1 of 1	
1607314-05A	Soil		1	50	50.000	1 of 1	
1607314-06A	Soil		1.09	50	45.872	1 of 1	
1607317-01A	Soil		1.1	50	45.455	1 of 1	
1607317-02A	Soil		1.06	50	47.170	1 of 1	
1607317-03A	Soil		1.07	50	46.729	1 of 1	
1607317-04A	Soil		1.03	50	48.544	1 of 1	
1607317-05A	Soil		1.05	50	47.619	1 of 1	
1607317-06A	Soil		1.13	50	44.248	1 of 1	
1607317-07A	Soil		1.08	50	46.296	1 of 1	
LCS-76690	Soil		1	50	50.000	of	
LCSD-76690	Soil		1	50	50.000	of	
MB-76690	Soil		1	50	50.000	of	

Number	Reagent Name	Amt	Units	Exp. Da
10056	Digestion Vessels	1	vessel	02/10/2026
10527	Hydrogen Peroxide, 30%	3	ml	07/09/2017
10543	Nitric Acid (Trace Metals)	10	ml	01/10/2017
10544	Hydrochloric Acid (trace metal grade)	5	ml	01/10/2017

Spk ID	Spike Name	SampType	Amt (mL or g)	Exp. Date
MET-150914-10	AL PRIMARY STD 1000 PPM	LCS/MS/MSD	0.25	10/01/2016
MET-150914-9	FE PRIMARY STD 1000 PPM	LCS/MS/MSD	0.25	10/01/2016
MET-SPIKE-160701-3	2500 PPM NATURALS SPIKE	LCS/MS/MSD	0.5	09/29/2016
MET-SPIKE-160715-4B	50 PPM Sb+Ag CAL	LCS/MS/MSD	1	10/13/2016
MET-SPIKE-160715-5B	50 PPM Custom+Sn,Ti,B,Mo,Sr CAL	LCS/MS/MSD	1	10/13/2016

REVIEWED BY
By Janice Whitt at 10:34:31 AM, 8/15/2016

MECHANICAL VOLUMETRIC PIPETTE VOLUME DAILY CHECK - DOD QSM 5.0

ANALYST:	CVD	**BALANCE #:**	30	
TEST DATE:	08/10/2016	**Water is at Room Temperatue (70-73°F) / (21-23°C)**		
PIPETTER LAB ID:	See Below	**WATER TEMP (°C):**	21-23°C	
TEST VOLUME:	See Below	**WATER DENSITY:**	0.998	(0.9980-0.9976)

REFERENCE:	DoD QSM 5.0
# of REPLICATES:	3
LABWARE TYPE:	MECHANICAL VOLUMETRIC PIPETTE
FREQUENCY:	DAILY BEFORE USE
MEAN CRITERIA:	± 2% OF NOMINAL VOLUME (VOLUME OF USE/TEST VOLUME)
RSD CRITERIA:	< 1% OF NOMINAL VOLUME (BASED ON MINIMUM OF 3 REPLICATE MEASUREMENTS)

1) RECORD ROOM AND WATER TEMPERATURE
2) TARE VESSEL ON BALANCE. ADD TEST VOLUME.
3) WEIGH 3 REPLICATES AT THE TEST VOLUME.
4) DETERMINE TOTAL WT.
5) CALCULATE VOLUME OF H2O AT °C (in mL)

% TEST VOL = Volume of H2O at °C/Test Volume * 100

%RSD = STDEV (Mean Volume)/AVERAGE (Mean Volume) *100

VOLUME OF H2O AT °C = TOTAL WT * WATER DENSITY

					BIAS	PRECISION
PIPETTE ID: P-31	**TEST VOLUME (mL)**	**TOTAL WT (g)**	**Volume of H_2O at °C**	**% TEST VOL (98-102%)**	**MEAN CRITERIA (± 2%)**	**% RSD Calculated**
1	4.00	4.0017	3.9937	99.84	PASS	RSD MUST BE ≤ 1% OF TEST VOLUME VALUE
2		4.0056	3.9976	99.94		
3		4.0028	3.9948	99.87		
AVERAGE (MEAN)		**4.003**	**3.995**	**99.88**		0.050
						PASS

PIPETTE ID: P-21	**TEST VOLUME (mL)**	**TOTAL WT (g)**	**Volume of H_2O at °C**	**% TEST VOL (98-102%)**	**MEAN CRITERIA (± 2%)**	**% RSD Calculated**
1	1.00	1.0036	1.0016	100.16	PASS	RSD MUST BE ≤ 1% OF TEST VOLUME VALUE
2		1.0024	1.0004	100.04		
3		1.0013	0.9993	99.93		
AVERAGE (MEAN)		**1.002**	**1.000**	**100.04**		0.115
						PASS

PIPETTE ID: P-39	**TEST VOLUME (mL)**	**TOTAL WT (g)**	**Volume of H_2O at °C**	**% TEST VOL (98-102%)**	**MEAN CRITERIA (± 2%)**	**% RSD Calculated**
1	0.500	0.5049	0.5039	100.78	PASS	RSD MUST BE ≤ 1% OF TEST VOLUME VALUE
2		0.5051	0.5041	100.82		
3		0.5038	0.5028	100.56		
AVERAGE (MEAN)		**0.505**	**0.504**	**100.72**		0.139
						PASS

CVC 8/10/16
Analyst / Date

REVIEWED BY
By Janice Whitt at 10:36:52 AM, 8/15/2016
Review and Approved / Date

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **8/8/2016 2:29:12 PM**
Digestion:
Prep End Date:

Prep Batch **76716** Prep Code: **3050_IDOD** Technician: **Sydney Powers** Prep Factor Units: **mL/g**

Equipment List
Hot Block #3
Thermometer #71
Balance #20
Pipette #P-01
Pipette#-P-09

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607317-08A	Soil		1.07	50	50.000	1 of 1	
1607317-09A	Soil		1.07	50	50.000	2 of 3	
1607317-09AMS	Soil		1.13	50	50.000	2 of 3	
1607317-09AMSD	Soil		1.13	50	50.000	2 of 3	
1607317-10A	Soil		1.16	50	50.000	1 of 1	
1607317-11A	Soil		1.05	50	50.000	1 of 1	
1607317-12A	Soil		1.13	50	50.000	1 of 1	
1607317-14A	Soil		1.02	50	50.000	1 of 1	
1607317-15A	Soil		1.07	50	50.000	1 of 1	
1607317-16A	Soil		1.09	50	50.000	1 of 1	
1607317-17A	Soil		1.07	50	50.000	1 of 1	
1607317-18A	Soil		1.14	50	50.000	1 of 1	
1607317-19A	Soil		1.02	50	50.000	1 of 1	
1607317-20A	Soil		1.03	50	50.000	1 of 1	
1607317-21A	Soil		1.04	50	50.000	1 of 1	
1607317-22A	Soil		1.07	50	50.000	1 of 1	
1607317-23A	Soil		1.03	50	50.000	1 of 1	
1607317-24A	Soil		1.08	50	50.000	1 of 1	
1607317-25A	Soil		1.04	50	50.000	1 of 1	
1607317-28A	Soil		1.12	50	50.000	1 of 1	
1607317-29A	Soil		1.13	50	50.000	1 of 1	
1607317-30A	Soil		1.10	50	50.000	1 of 1	
LCS-76716	Soil		1	50	50.000	of	
LCSD-76716	Soil		1	50	50.000	of	
MB-76716	Soil		1	50	50.000	of	

Number	Reagent Name	Amt	Units	Exp. D
10056	Digestion Vessels	1	vessel	02/10/2026
10527	Hydrogen Peroxide, 30%	3	ml	07/09/2017
10543	Nitric Acid (Trace Metals)	10	ml	01/10/2017
10544	Hydrochloric Acid (trace metal grade)	5	ml	01/10/2017

Spk ID	Spike Name	SampType	Amt (mL or g)	Exp. Date
MET-150914-10	AL PRIMARY STD 1000 PPM	LCS/MS/MSD	0.25	10/01/2016
MET-150914-9	FE PRIMARY STD 1000 PPM	LCS/MS/MSD	0.25	10/01/2016
MET-SPIKE-160701-3	2500 PPM NATURALS SPIKE	LCS/MS/MSD	0.5	09/29/2016
MET-SPIKE-160715-4B	50 PPM Sb+Ag CAL	LCS/MS/MSD	1	10/13/2016
MET-SPIKE-160715-5B	50 PPM Custom+Sn,Ti,B,Mo,Sr CAL	LCS/MS/MSD	1	10/13/2016

7:21 - 7:31
7:32 - 9:32
9:53 - 11:53
12:10 - 12:25

8/9/16

REVIEWED BY
By Janice Whitt at 10:38:07 AM, 8/15/2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **7/28/2016 4:31:01 PM**
Digestion: **Start: 7/28/2016 4:45:00 PM / Stop: 8/1/2016 10:00:00 AM**
Prep End Date: **8/2/2016 10:00:00 AM**

Prep Batch **76551** Prep Code: **ISM2MM_PREP** Technician: **Jennifer Barker** Prep Factor Units: **mL/**

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607317-01A	Soil		0	0	#Num!	1 of 1	
SS							
1607317-02A	Soil		0	0	#Num!	1 of 1	
SS							
1607317-03A	Soil		0	0	#Num!	1 of 1	
Sieve only hard clay							
1607317-04A	Soil		0	0	#Num!	1 of 1	
Sieve only hard clay							
1607317-05A	Soil		0	0	#Num!	1 of 1	
SS							
1607317-06A	Soil		0	0	#Num!	1 of 1	
SS							
1607317-07A	Soil		0	0	#Num!	1 of 1	
Sieve only hard clay							
1607317-08A	Soil		0	0	#Num!	1 of 1	
Sieve only hard clay							
1607317-09A	Soil		0	0	#Num!	of 3	
SS MS/MSD							
1607317-10A	Soil		0	0	#Num!	1 of 1	
SS							
1607317-11A	Soil		0	0	#Num!	1 of 1	
Sieve only hard clay							
1607317-12A	Soil		0	0	#Num!	1 of 1	
Sieve only hard clay							
1607317-14A	Soil		0	0	#Num!	1 of 1	
SS							

REVIEWED BY
By Janice Whitt at 10:38:12 AM, 8/15/2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **7/28/2016 4:31:01 PM**
Digestion: **Start: 7/28/2016 4:45:00 PM / Stop: 8/1/2016 10:00:00 AM**
Prep End Date: **8/2/2016 10:00:00 AM**

Prep Batch **76551** Prep Code: **ISM2MM_PREP** Technician: **Jennifer Barker** Prep Factor Units: **mL/**

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607317-15A	Soil		0	0	#Num!	1 of 1	
SS							
1607317-16A	Soil		0	0	#Num!	1 of 1	
SS							
1607317-17A	Soil		0	0	#Num!	1 of 1	
SS							
1607317-18A	Soil		0	0	#Num!	1 of 1	
SS							
1607317-19A	Soil		0	0	#Num!	1 of 1	
SS							
1607317-20A	Soil		0	0	#Num!	1 of 1	
SS							
1607317-21A	Soil		0	0	#Num!	1 of 1	
SS							
1607317-22A	Soil		0	0	#Num!	1 of 1	
SS							
1607317-23A	Soil		0	0	#Num!	1 of 1	
SS							
1607317-24A	Soil		0	0	#Num!	1 of 1	
SS							
1607317-25A	Soil		0	0	#Num!	1 of 1	
SS							
1607317-27A	Soil		0	0	#Num!	of 3	
SS MS/MSD							
1607317-28A	Soil		0	0	#Num!	1 of 1	
SS							

REVIEWED BY
By Janice Whitt at 10:38:17 AM, 8/15/2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **7/28/2016 4:31:01 PM**
Digestion: **Start: 7/28/2016 4:45:00 PM / Stop: 8/1/2016 10:00:00 AM**
Prep End Date: **8/2/2016 10:00:00 AM**

Prep Batch **76551** Prep Code: **ISM2MM_PREP** Technician: **Jennifer Barker** Prep Factor Units: **mL/**

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607317-29A	Soil		0	0	#Num!	1 of 1	
SS							
1607317-30A	Soil		0	0	#Num!	1 of 1	
Sieve only hard clay							
1607317-31A	Soil		0	0	#Num!	1 of 1	
SS							
1607317-32A	Soil		0	0	#Num!	1 of 1	
SS							
1607317-33A	Soil		0	0	#Num!	1 of 1	
SS							
1607317-34A	Soil		0	0	#Num!	1 of 1	
Sieve only hard clay							
1607317-35A	Soil		0	0	#Num!	1 of 1	
SS							
1607317-36A	Soil		0	0	#Num!	1 of 1	
SS							
1607317-37A	Soil		0	0	#Num!	1 of 1	
SS							
1607317-38A	Soil		0	0	#Num!	1 of 1	
Sieve only hard clay							

REVIEWED BY
By Janice Whitt at 10:38:19 AM, 8/15/2016

MECHANICAL VOLUMETRIC PIPETTE VOLUME DAILY CHECK - DOD QSM 5.0

ANALYST:	SP	**BALANCE #:**	26		
TEST DATE:	08/09/2016	**Water is at Room Temperatue (70-73°F) / (21-23°C)**			
PIPETTER LAB ID:	P-01, P-09	**WATER TEMP (°C):**	21-23°C		
TEST VOLUME:	See Below	**WATER DENSITY:**	0.998	(0.9980-0.9976)	

REFERENCE:	DoD QSM 5.0
# of REPLICATES:	3
LABWARE TYPE:	MECHANICAL VOLUMETRIC PIPETTE
FREQUENCY:	DAILY BEFORE USE
MEAN CRITERIA:	± 2% OF NOMINAL VOLUME (VOLUME OF USE/TEST VOLUME)
RSD CRITERIA:	< 1% OF NOMINAL VOLUME (BASED ON MINIMUM OF 3 REPLICATE MEASUREMENTS)

1) RECORD ROOM AND WATER TEMPERATURE
2) TARE VESSEL ON BALANCE. ADD TEST VOLUME.
3) WEIGH 3 REPLICATES AT THE TEST VOLUME.
4) DETERMINE TOTAL WT.
5) CALCULATE VOLUME OF H2O AT °C (in mL)

% TEST VOL = Volume of H2O at °C/Test Volume * 100

%RSD = STDEV (Mean Volume)/AVERAGE (Mean Volume) *100

VOLUME OF H2O AT °C = TOTAL WT / WATER DENSITY

					BIAS	PRECISION
PIPETTE ID: P-01	**TEST VOLUME (mL)**	**TOTAL WT (g)**	**Volume of H_2O at °C**	**% TEST VOL (98-102%)**	**MEAN CRITERIA (± 2%)**	**% RSD Calculated**
1	5.00	4.9471	4.9570	99.14	PASS	RSD MUST BE ≤ 1% OF TEST VOLUME VALUE
2		4.9669	4.9769	99.54		
3		4.9539	4.9638	99.28		
AVERAGE (MEAN)		4.956	4.966	99.32		0.203
						PASS

PIPETTE ID: P-09	**TEST VOLUME (mL)**	**TOTAL WT (g)**	**Volume of H_2O at °C**	**% TEST VOL (98-102%)**	**MEAN CRITERIA (± 2%)**	**% RSD Calculated**
1	0.20	0.2026	0.2030	101.50	PASS	RSD MUST BE ≤ 1% OF TEST VOLUME VALUE
2		0.2018	0.2022	101.10		
3		0.2018	0.2022	101.10		
AVERAGE (MEAN)		0.202	0.202	101.24		0.229
						PASS

PIPETTE ID:	**TEST VOLUME (mL)**	**TOTAL WT (g)**	**Volume of H_2O at °C**	**% TEST VOL (98-102%)**	**MEAN CRITERIA (± 2%)**	**% RSD Calculated**
1						RSD MUST BE ≤ 1% OF TEST VOLUME VALUE
2						
3						
AVERAGE (MEAN)						

SM 8/9/16
Analyst / Date

REVIEWED BY
By Janice Whitt at 10:38:23 AM, 8/15/2016
Review and Approved / Date

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **8/8/2016 2:29:12 PM**
Digestion: **Start: 8/9/2016 7:21:00 AM / Stop: 8/9/2016 12:25:00 PM**
Prep End Date: **8/9/2016 4:10:41 PM**

Prep Batch **76716** Prep Code: **3050_IDOD** Technician: **Sydney Powers**

Prep Factor Units: **mL/g**

Equipment List

- Hot Block #3
- Thermometer #71
- Balance #20
- Pipette #P-01
- Pipette#-P-09

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607317-08A	Soil		1.07	50	46.729	1 of 1	
1607317-09A	Soil		1.07	50	46.729	of 3	
1607317-09A MS	Soil		1.13	50	44.248	of	
1607317-09A MSD	Soil		1.13	50	44.248	of	
1607317-09A PDS	Soil		1.07	50	46.729	of	
1607317-09A SD	Soil		1.07	50	46.729	of	
1607317-10A	Soil		1.16	50	43.103	1 of 1	
1607317-11A	Soil		1.05	50	47.619	1 of 1	
1607317-12A	Soil		1.13	50	44.248	1 of 1	
1607317-14A	Soil		1.02	50	49.020	1 of 1	
1607317-15A	Soil		1.07	50	46.729	1 of 1	
1607317-16A	Soil		1.09	50	45.872	1 of 1	
1607317-17A	Soil		1.07	50	46.729	1 of 1	
1607317-18A	Soil		1.14	50	43.860	1 of 1	
1607317-19A	Soil		1.02	50	49.020	1 of 1	
1607317-20A	Soil		1.03	50	48.544	1 of 1	
1607317-21A	Soil		1.04	50	48.077	1 of 1	
1607317-22A	Soil		1.07	50	46.729	1 of 1	
1607317-23A	Soil		1.03	50	48.544	1 of 1	
1607317-24A	Soil		1.08	50	46.296	1 of 1	
1607317-25A	Soil		1.04	50	48.077	1 of 1	
1607317-28A	Soil		1.12	50	44.643	1 of 1	
1607317-29A	Soil		1.13	50	44.248	1 of 1	
1607317-30A	Soil		1.1	50	45.455	1 of 1	
LCS-76716	Soil		1	50	50.000	of	
LCSD-76716	Soil		1	50	50.000	of	
MB-76716	Soil		1	50	50.000	of	

Number	Reagent Name	Amt	Units	Exp. Da
10056	Digestion Vessels	1	vessel	02/10/2026
10527	Hydrogen Peroxide, 30%	3	ml	07/09/2017
10543	Nitric Acid (Trace Metals)	10	ml	01/10/2017
10544	Hydrochloric Acid (trace metal grade)	5	ml	01/10/2017

Spk ID	Spike Name	SampType	Amt (mL or g)	Exp. Date
MET-150914-10	AL PRIMARY STD 1000 PPM	LCS/MS/MSD	0.25	10/01/2016
MET-150914-9	FE PRIMARY STD 1000 PPM	LCS/MS/MSD	0.25	10/01/2016
MET-SPIKE-160701-3	2500 PPM NATURALS SPIKE	LCS/MS/MSD	0.5	09/29/2016
MET-SPIKE-160715-4B	50 PPM Sb+Ag CAL	LCS/MS/MSD	1	10/13/2016
MET-SPIKE-160715-5B	50 PPM Custom+Sn,Ti,B,Mo,Sr CAL	LCS/MS/MSD	1	10/13/2016

REVIEWED BY
By Janice Whitt at 10:38:01 AM, 8/15/2016

MECHANICAL VOLUMETRIC PIPETTE VOLUME DAILY CHECK - DOD QSM 5.0

ANALYST:	CVD	**BALANCE #:**	30	
TEST DATE:	08/10/2016	**Water is at Room Temperatue (70-73°F) / (21-23°C)**		
PIPETTER LAB ID:	See Below	**WATER TEMP (°C):**	**21-23°C**	
TEST VOLUME:	See Below	**WATER DENSITY:**	**0.998**	**(0.9980-0.9976)**

REFERENCE:	DoD QSM 5.0
# of REPLICATES:	3
LABWARE TYPE:	MECHANICAL VOLUMETRIC PIPETTE
FREQUENCY:	DAILY BEFORE USE
MEAN CRITERIA:	± 2% OF NOMINAL VOLUME (VOLUME OF USE/TEST VOLUME)
RSD CRITERIA:	< 1% OF NOMINAL VOLUME (BASED ON MINIMUM OF 3 REPLICATE MEASUREMENTS)

1) RECORD ROOM AND WATER TEMPERATURE	**% TEST VOL = Volume of H2O at °C/Test Volume * 100**
2) TARE VESSEL ON BALANCE. ADD TEST VOLUME.	**%RSD = STDEV (Mean Volume)/AVERAGE (Mean Volume) *100**
3) WEIGH 3 REPLICATES AT THE TEST VOLUME.	
4) DETERMINE TOTAL WT.	
5) CALCULATE VOLUME OF H2O AT °C (in mL)	**VOLUME OF H2O AT °C = TOTAL WT * WATER DENSITY**

					BIAS	PRECISION
PIPETTE ID: P-31	**TEST VOLUME (mL)**	**TOTAL WT (g)**	**Volume of H_2O at °C**	**% TEST VOL (98-102%)**	**MEAN CRITERIA (± 2%)**	**% RSD Calculated**
1	4.00	4.0017	3.9937	99.84	PASS	RSD MUST BE ≤ 1% OF TEST VOLUME VALUE
2		4.0056	3.9976	99.94		
3		4.0028	3.9948	99.87		
AVERAGE (MEAN)		**4.003**	**3.995**	**99.88**		**0.050**
						PASS

PIPETTE ID: P-21	**TEST VOLUME (mL)**	**TOTAL WT (g)**	**Volume of H_2O at °C**	**% TEST VOL (98-102%)**	**MEAN CRITERIA (± 2%)**	**% RSD Calculated**
1	1.00	1.0036	1.0016	100.16	PASS	RSD MUST BE ≤ 1% OF TEST VOLUME VALUE
2		1.0024	1.0004	100.04		
3		1.0013	0.9993	99.93		
AVERAGE (MEAN)		**1.002**	**1.000**	**100.04**		**0.115**
						PASS

PIPETTE ID: P-39	**TEST VOLUME (mL)**	**TOTAL WT (g)**	**Volume of H_2O at °C**	**% TEST VOL (98-102%)**	**MEAN CRITERIA (± 2%)**	**% RSD Calculated**
1	0.500	0.5049	0.5039	100.78	PASS	RSD MUST BE ≤ 1% OF TEST VOLUME VALUE
2		0.5051	0.5041	100.82		
3		0.5038	0.5028	100.56		
AVERAGE (MEAN)		**0.505**	**0.504**	**100.72**		**0.139**
						PASS

8/10/16

Analyst / Date

REVIEWED BY
By Janice Whitt at 10:38:30 AM, 8/15/2016

Review and Approved / Date

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **8/8/2016 2:31:10 PM**
Digestion:
Prep End Date:

Prep Batch **76717** Prep Code: **3050_IDOD** Technician: **Sydney Powers**

Prep Factor Units: **mL/g**

Equipment List
Hot Block #3
Thermometer #71
Balance #20
Pipette #P-01
Pipette#-P-09

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607317-27A	Soil		1.05	50	50.000	2 of 3	
1607317-27AMS	Soil		1.10	50	50.000	2 of 3	
1607317-27AMSD	Soil		1.06	50	50.000	2 of 3	
1607317-31A	Soil		1.06	50	50.000	1 of 1	
1607317-32A	Soil		1.14	50	50.000	1 of 1	
1607317-33A	Soil		1.01	50	50.000	1 of 1	
1607317-34A	Soil		1.16	50	50.000	1 of 1	
1607317-35A	Soil		1.01	50	50.000	1 of 1	
1607317-36A	Soil		1.03	50	50.000	1 of 1	
1607317-37A	Soil		1.04	50	50.000	1 of 1	
1607317-38A	Soil		1.04	50	50.000	1 of 1	
1607337-01A	Soil		1.05	50	50.000	1 of 1	
1607337-02A	Soil		1.02	50	50.000	1 of 1	
1607337-03A	Soil		1.08	50	50.000	1 of 1	
1607337-04A	Soil		1.02	50	50.000	1 of 1	
1607337-05A	Soil		1.04	50	50.000	1 of 1	
1607337-06A	Soil		1.04	50	50.000	1 of 1	
1607337-07A	Soil		1.05	50	50.000	1 of 1	
1607337-08A	Soil		1.03	50	50.000	1 of 1	
1607337-09A	Soil		1.14	50	50.000	1 of 1	
1607337-11A	Soil		1.06	50	50.000	1 of 1	
1607337-12A	Soil		1.08	50	50.000	1 of 1	
LCS-76717	Soil		1	50	50.000	of	
LCSD-76717	Soil		1	50	50.000	of	
MB-76717	Soil		1	50	50.000	of	

Number	Reagent Name	Amt	Units	Exp. Da
10056	Digestion Vessels	1	vessel	02/10/2026
10527	Hydrogen Peroxide, 30%	3	ml	07/09/2017
10543	Nitric Acid (Trace Metals)	10	ml	01/10/2017
10544	Hydrochloric Acid (trace metal grade)	5	ml	01/10/2017

Spk ID	Spike Name	SampType	Amt (mL or g)	Exp. Date
MET-150914-10	AL PRIMARY STD 1000 PPM	LCS/MS/MSD	0.25	10/01/2016
MET-150914-9	FE PRIMARY STD 1000 PPM	LCS/MS/MSD	0.25	10/01/2016
MET-SPIKE-160701-3	2500 PPM NATURALS SPIKE	LCS/MS/MSD	0.5	09/29/2016
MET-SPIKE-160715-4B	50 PPM Sb+Ag CAL	LCS/MS/MSD	1	10/13/2016
MET-SPIKE-160715-5B	50 PPM Custom+Sn,Ti,B,Mo,Sr CAL	LCS/MS/MSD	1	10/13/2016

7:21 - 7:31
7:32 - 9:32
9:53 - 11:53
12:10 - 12:25

8/9/16

REVIEWED BY
By Janice Whitt at 10:44:02 AM, 8/15/2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **7/28/2016 4:31:01 PM**
Digestion: **Start: 7/28/2016 4:45:00 PM / Stop: 8/1/2016 10:00:00 AM**
Prep End Date: **8/2/2016 10:00:00 AM**

Prep Batch **76551** Prep Code: **ISM2MM_PREP** Technician: **Jennifer Barker** Prep Factor Units: **mL/**

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607317-01A	Soil		0	0	#Num!	1 of 1	
SS							
1607317-02A	Soil		0	0	#Num!	1 of 1	
SS							
1607317-03A	Soil		0	0	#Num!	1 of 1	
Sieve only hard clay							
1607317-04A	Soil		0	0	#Num!	1 of 1	
Sieve only hard clay							
1607317-05A	Soil		0	0	#Num!	1 of 1	
SS							
1607317-06A	Soil		0	0	#Num!	1 of 1	
SS							
1607317-07A	Soil		0	0	#Num!	1 of 1	
Sieve only hard clay							
1607317-08A	Soil		0	0	#Num!	1 of 1	
Sieve only hard clay							
1607317-09A	Soil		0	0	#Num!	of 3	
SS MS/MSD							
1607317-10A	Soil		0	0	#Num!	1 of 1	
SS							
1607317-11A	Soil		0	0	#Num!	1 of 1	
Sieve only hard clay							
1607317-12A	Soil		0	0	#Num!	1 of 1	
Sieve only hard clay							
1607317-14A	Soil		0	0	#Num!	1 of 1	
SS							

REVIEWED BY
By Janice Whitt at 10:44:15 AM, 8/15/2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **7/28/2016 4:31:01 PM**
Digestion: **Start: 7/28/2016 4:45:00 PM / Stop: 8/1/2016 10:00:00 AM**
Prep End Date: **8/2/2016 10:00:00 AM**

Prep Batch **76551** Prep Code: **ISM2MM_PREP** Technician: **Jennifer Barker** Prep Factor Units: **mL/**

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607317-15A	Soil		0	0	#Num!	1 of 1	
SS							
1607317-16A	Soil		0	0	#Num!	1 of 1	
SS							
1607317-17A	Soil		0	0	#Num!	1 of 1	
SS							
1607317-18A	Soil		0	0	#Num!	1 of 1	
SS							
1607317-19A	Soil		0	0	#Num!	1 of 1	
SS							
1607317-20A	Soil		0	0	#Num!	1 of 1	
SS							
1607317-21A	Soil		0	0	#Num!	1 of 1	
SS							
1607317-22A	Soil		0	0	#Num!	1 of 1	
SS							
1607317-23A	Soil		0	0	#Num!	1 of 1	
SS							
1607317-24A	Soil		0	0	#Num!	1 of 1	
SS							
1607317-25A	Soil		0	0	#Num!	1 of 1	
SS							
1607317-27A	Soil		0	0	#Num!	of 3	
SS MS/MSD							
1607317-28A	Soil		0	0	#Num!	1 of 1	
SS							

REVIEWED BY
By Janice Whitt at 10:44:18 AM, 8/15/2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **7/28/2016 4:31:01 PM**
Digestion: **Start: 7/28/2016 4:45:00 PM / Stop: 8/1/2016 10:00:00 AM**
Prep End Date: **8/2/2016 10:00:00 AM**

Prep Batch **76551** Prep Code: **ISM2MM_PREP** Technician: **Jennifer Barker**

Prep Factor Units: **mL/**

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607317-29A	Soil		0	0	#Num!	1 of 1	
SS							
1607317-30A	Soil		0	0	#Num!	1 of 1	
Sieve only hard clay							
1607317-31A	Soil		0	0	#Num!	1 of 1	
SS							
1607317-32A	Soil		0	0	#Num!	1 of 1	
SS							
1607317-33A	Soil		0	0	#Num!	1 of 1	
SS							
1607317-34A	Soil		0	0	#Num!	1 of 1	
Sieve only hard clay							
1607317-35A	Soil		0	0	#Num!	1 of 1	
SS							
1607317-36A	Soil		0	0	#Num!	1 of 1	
SS							
1607317-37A	Soil		0	0	#Num!	1 of 1	
SS							
1607317-38A	Soil		0	0	#Num!	1 of 1	
Sieve only hard clay							

REVIEWED BY
By Janice Whitt at 10:44:22 AM, 8/15/2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **7/29/2016 3:00:00 PM**
Digestion: **Start: 7/29/2016 3:20:00 PM / Stop: 8/2/2016 10:15:00 AM**
Prep End Date: **8/2/2016 4:00:00 PM**

Prep Batch **76570** Prep Code: **ISM2MM_PREP** Technician: **Jennifer Barker**

Prep Factor Units: **mL/**

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607337-01A SS	Soil		0	0	#Num!	1 of 1	
1607337-02A SS	Soil		0	0	#Num!	1 of 1	
1607337-03A SS	Soil		0	0	#Num!	1 of 1	
1607337-04A SS	Soil		0	0	#Num!	1 of 1	
1607337-05A SS	Soil		0	0	#Num!	1 of 1	
1607337-06A SS	Soil		0	0	#Num!	1 of 1	
1607337-07A SS	Soil		0	0	#Num!	1 of 1	
1607337-08A SS	Soil		0	0	#Num!	1 of 1	
1607337-09A SS	Soil		0	0	#Num!	1 of 1	
1607337-10A SS MS/MSD	Soil		0	0	#Num!	of 3	
1607337-11A SS	Soil		0	0	#Num!	1 of 1	
1607337-12A SS	Soil		0	0	#Num!	1 of 1	
1607337-14A SS	Soil		0	0	#Num!	1 of 1	

REVIEWED BY
By Janice Whitt at 10:44:31 AM, 8/15/2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **7/29/2016 3:00:00 PM**
Digestion: **Start: 7/29/2016 3:20:00 PM / Stop: 8/2/2016 10:15:00 AM**
Prep End Date: **8/2/2016 4:00:00 PM**

Prep Batch **76570** Prep Code: **ISM2MM_PREP** Technician: **Jennifer Barker**

Prep Factor Units: **mL/**

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607337-15A SS	Soil		0	0	#Num!	1 of 1	
1607337-16A SS	Soil		0	0	#Num!	1 of 1	
1607337-17A SS	Soil		0	0	#Num!	1 of 1	
1607337-18A SS	Soil		0	0	#Num!	1 of 1	
1607337-19A SS	Soil		0	0	#Num!	1 of 1	
1607337-20A SS	Soil		0	0	#Num!	1 of 1	
1607337-21A SS	Soil		0	0	#Num!	1 of 1	
1607337-22A SS	Soil		0	0	#Num!	1 of 1	
1607337-23A SS	Soil		0	0	#Num!	1 of 1	
1607337-24A SS	Soil		0	0	#Num!	1 of 1	
1607337-25A SS	Soil		0	0	#Num!	1 of 1	

REVIEWED BY
By Janice Whitt at 10:44:33 AM, 8/15/2016

MECHANICAL VOLUMETRIC PIPETTE VOLUME DAILY CHECK - DOD QSM 5.0

ANALYST:	SP	**BALANCE #:**	26	
TEST DATE:	08/09/2016	**Water is at Room Temperatue (70-73°F) / (21-23°C)**		
PIPETTER LAB ID:	P-01, P-09	**WATER TEMP (°C):**	**21-23°C**	
TEST VOLUME:	See Below	**WATER DENSITY:**	0.998	(0.9980-0.9976)

REFERENCE:	DoD QSM 5.0
# of REPLICATES:	3
LABWARE TYPE:	MECHANICAL VOLUMETRIC PIPETTE
FREQUENCY:	DAILY BEFORE USE
MEAN CRITERIA:	± 2% OF NOMINAL VOLUME (VOLUME OF USE/TEST VOLUME)
RSD CRITERIA:	< 1% OF NOMINAL VOLUME (BASED ON MINIMUM OF 3 REPLICATE MEASUREMENTS)

1) RECORD ROOM AND WATER TEMPERATURE
2) TARE VESSEL ON BALANCE. ADD TEST VOLUME.
3) WEIGH 3 REPLICATES AT THE TEST VOLUME.
4) DETERMINE TOTAL WT.
5) CALCULATE VOLUME OF H2O AT °C (in mL)

% TEST VOL = Volume of H2O at °C/Test Volume * 100

%RSD = STDEV (Mean Volume)/AVERAGE (Mean Volume) *100

VOLUME OF H2O AT °C = TOTAL WT / WATER DENSITY

					BIAS	PRECISION
PIPETTE ID: P-01	**TEST VOLUME (mL)**	**TOTAL WT (g)**	**Volume of H_2O at °C**	**% TEST VOL (98-102%)**	**MEAN CRITERIA (± 2%)**	**% RSD Calculated**
1	5.00	4.9471	4.9570	99.14	PASS	RSD MUST BE ≤ 1% OF TEST VOLUME VALUE
2		4.9669	4.9769	99.54		
3		4.9539	4.9638	99.28		
AVERAGE (MEAN)		**4.956**	**4.966**	**99.32**		**0.203**
						PASS

PIPETTE ID: P-09	**TEST VOLUME (mL)**	**TOTAL WT (g)**	**Volume of H_2O at °C**	**% TEST VOL (98-102%)**	**MEAN CRITERIA (± 2%)**	**% RSD Calculated**
1	0.20	0.2026	0.2030	101.50	PASS	RSD MUST BE ≤ 1% OF TEST VOLUME VALUE
2		0.2018	0.2022	101.10		
3		0.2018	0.2022	101.10		
AVERAGE (MEAN)		**0.202**	**0.202**	**101.24**		**0.229**
						PASS

PIPETTE ID:	**TEST VOLUME (mL)**	**TOTAL WT (g)**	**Volume of H_2O at °C**	**% TEST VOL (98-102%)**	**MEAN CRITERIA (± 2%)**	**% RSD Calculated**
1						RSD MUST BE ≤ 1% OF TEST VOLUME VALUE
2						
3						
AVERAGE (MEAN)						

8/9/16
Analyst / Date

REVIEWED BY
By Janice Whitt at 10:44:10 AM, 8/15/2016
Review and Approved / Date

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **8/8/2016 2:31:10 PM**
Digestion: **Start: 8/9/2016 7:21:00 AM / Stop: 8/9/2016 12:25:00 PM**
Prep End Date: **8/9/2016 4:12:53 PM**

Prep Batch **76717** Prep Code: **3050_IDOD** Technician: **Sydney Powers**

Prep Factor Units: **mL/g**

Equipment List

- Hot Block #3
- Thermometer #71
- Balance #20
- Pipette #P-01
- Pipette#-P-09

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #		
1607317-27A	Soil		1.05	50	47.619		of	3
1607317-27A MS	Soil		1.1	50	45.455		of	
1607317-27A MSD	Soil		1.06	50	47.170		of	
1607317-27A PDS	Soil		1.05	50	47.619		of	
1607317-27A SD	Soil		1.05	50	47.619		of	
1607317-31A	Soil		1.06	50	47.170	1	of	1
1607317-32A	Soil		1.14	50	43.860	1	of	1
1607317-33A	Soil		1.01	50	49.505	1	of	1
1607317-34A	Soil		1.16	50	43.103	1	of	1
1607317-35A	Soil		1.01	50	49.505	1	of	1
1607317-36A	Soil		1.03	50	48.544	1	of	1
1607317-37A	Soil		1.04	50	48.077	1	of	1
1607317-38A	Soil		1.04	50	48.077	1	of	1
1607337-01A	Soil		1.05	50	47.619	1	of	1
1607337-02A	Soil		1.02	50	49.020	1	of	1
1607337-03A	Soil		1.08	50	46.296	1	of	1
1607337-04A	Soil		1.02	50	49.020	1	of	1
1607337-05A	Soil		1.04	50	48.077	1	of	1
1607337-06A	Soil		1.04	50	48.077	1	of	1
1607337-07A	Soil		1.05	50	47.619	1	of	1
1607337-08A	Soil		1.03	50	48.544	1	of	1
1607337-09A	Soil		1.14	50	43.860	1	of	1
1607337-11A	Soil		1.06	50	47.170	1	of	1
1607337-12A	Soil		1.08	50	46.296	1	of	1
LCS-76717	Soil		1	50	50.000		of	
LCSD-76717	Soil		1	50	50.000		of	
MB-76717	Soil		1	50	50.000		of	

Number	Reagent Name	Amt	Units	Exp. Da
10056	Digestion Vessels	1	vessel	02/10/2026
10527	Hydrogen Peroxide, 30%	3	ml	07/09/2017
10543	Nitric Acid (Trace Metals)	10	ml	01/10/2017
10544	Hydrochloric Acid (trace metal grade)	5	ml	01/10/2017

Spk ID	Spike Name	SampType	Amt (mL or g)	Exp. Date
MET-150914-10	AL PRIMARY STD 1000 PPM	LCS/MS/MSD	0.25	10/01/2016
MET-150914-9	FE PRIMARY STD 1000 PPM	LCS/MS/MSD	0.25	10/01/2016
MET-SPIKE-160701-3	2500 PPM NATURALS SPIKE	LCS/MS/MSD	0.5	09/29/2016
MET-SPIKE-160715-4B	50 PPM Sb+Ag CAL	LCS/MS/MSD	1	10/13/2016
MET-SPIKE-160715-5B	50 PPM Custom+Sn,Ti,B,Mo,Sr CAL	LCS/MS/MSD	1	10/13/2016

REVIEWED BY
By Janice Whitt at 10:44:07 AM, 8/15/2016

MECHANICAL VOLUMETRIC PIPETTE VOLUME DAILY CHECK - DOD QSM 5.0

ANALYST:	CVD	**BALANCE #:**	30	
TEST DATE:	08/10/2016	**Water is at Room Temperatue (70-73°F) / (21-23°C)**		
PIPETTER LAB ID:	See Below	**WATER TEMP (°C):**	**21-23°C**	
TEST VOLUME:	See Below	**WATER DENSITY:**	**0.998**	**(0.9980-0.9976)**

REFERENCE:	DoD QSM 5.0
# of REPLICATES:	3
LABWARE TYPE:	MECHANICAL VOLUMETRIC PIPETTE
FREQUENCY:	DAILY BEFORE USE
MEAN CRITERIA:	± 2% OF NOMINAL VOLUME (VOLUME OF USE/TEST VOLUME)
RSD CRITERIA:	< 1% OF NOMINAL VOLUME (BASED ON MINIMUM OF 3 REPLICATE MEASUREMENTS)

1) RECORD ROOM AND WATER TEMPERATURE
2) TARE VESSEL ON BALANCE. ADD TEST VOLUME.
3) WEIGH 3 REPLICATES AT THE TEST VOLUME.
4) DETERMINE TOTAL WT.
5) CALCULATE VOLUME OF H2O AT °C (in mL)

% TEST VOL = Volume of H2O at °C/Test Volume * 100

%RSD = STDEV (Mean Volume)/AVERAGE (Mean Volume) *100

VOLUME OF H2O AT °C = TOTAL WT * WATER DENSITY

					BIAS	PRECISION
PIPETTE ID: P-31	**TEST VOLUME (mL)**	**TOTAL WT (g)**	**Volume of H_2O at °C**	**% TEST VOL (98-102%)**	**MEAN CRITERIA (± 2%)**	**% RSD Calculated**
1	**4.00**	4.0017	3.9937	99.84	**PASS**	**RSD MUST BE ≤ 1% OF TEST VOLUME VALUE**
2		4.0056	3.9976	99.94		
3		4.0028	3.9948	99.87		
AVERAGE (MEAN)		**4.003**	**3.995**	**99.88**		**0.050**
						PASS

PIPETTE ID: P-21	**TEST VOLUME (mL)**	**TOTAL WT (g)**	**Volume of H_2O at °C**	**% TEST VOL (98-102%)**	**MEAN CRITERIA (± 2%)**	**% RSD Calculated**
1	**1.00**	1.0036	1.0016	100.16	**PASS**	**RSD MUST BE ≤ 1% OF TEST VOLUME VALUE**
2		1.0024	1.0004	100.04		
3		1.0013	0.9993	99.93		
AVERAGE (MEAN)		**1.002**	**1.000**	**100.04**		**0.115**
						PASS

PIPETTE ID: P-39	**TEST VOLUME (mL)**	**TOTAL WT (g)**	**Volume of H_2O at °C**	**% TEST VOL (98-102%)**	**MEAN CRITERIA (± 2%)**	**% RSD Calculated**
1	**0.500**	0.5049	0.5039	100.78	**PASS**	**RSD MUST BE ≤ 1% OF TEST VOLUME VALUE**
2		0.5051	0.5041	100.82		
3		0.5038	0.5028	100.56		
AVERAGE (MEAN)		**0.505**	**0.504**	**100.72**		**0.139**
						PASS

Analyst / Date 8/10/16

REVIEWED BY
By Janice Whitt at 10:44:40 AM, 8/15/2016

Review and Approved / Date

Calibration Summary Report

Instrument: ICPMS3
Current Method: C:\ICPCHEM\1\METHODS\DHL_3Fe.M
Calibration: C:\ICPCHEM\1\CALIB\DHL_3FE.c
Last Update: Aug 10 2016 02:34 pm
Cal Type: Y=aX+[blank]

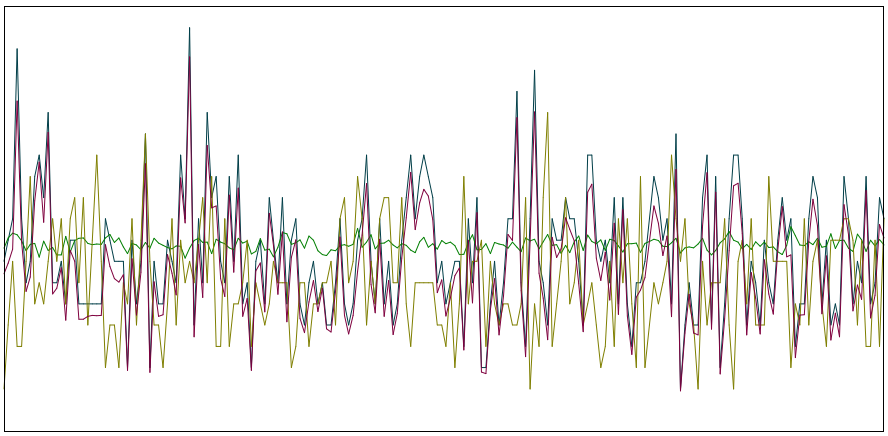
Standard	Date Acquired	File
BLANK STD 1	Aug 10 2016 11:23 am	c:\icpchem\1\data\16h10k01.b\006calb.d\
L2-160810	Aug 10 2016 11:29 am	c:\icpchem\1\data\16h10k01.b\007cals.d\
L-160810	Aug 10 2016 11:35 am	c:\icpchem\1\data\16h10k01.b\008cals.d\
10X-160810	Aug 10 2016 11:41 am	c:\icpchem\1\data\16h10k01.b\009cals.d\
5X-160810	Aug 10 2016 11:47 am	c:\icpchem\1\data\16h10k01.b\010cals.d\
2X-160810	Aug 10 2016 11:53 am	c:\icpchem\1\data\16h10k01.b\011cals.d\

Element Name	Corr Coef	Coef A	Coef B	Lvl 2	Lvl 6	Lvl 7	L7 %R	Lvl 8	L8 %R
Li	1.0000	0.2521	0.02647	1.02	251	495		2001	
Be	0.9998	0.08084	0.001981	1.02	258	495	99%	--------	######
B	1.0000	0.06709	0.1279	1.03	246	506	101%	1,999	100%
Na	0.9999	0.3114	16.92	21.48	5,224	10,290	103%	24,840	99%
Mg	0.9999	0.1379	0.6385	20.85	4,942	10,290	103%	24,890	100%
Al	1.0000	0.03346	0.4768	19.83	4,968	10,020	100%	--------	######
K	1.0000	0.07929	5.958	21.58	4,873	9,826	98%	25,100	100%
Ca	0.9999	0.009081	0.3945	22.79	5,134	10,200	102%	24,900	100%
Ti	0.9999	0.03024	0.003928	0.77	245	480	96%	2,006	100%
V	1.0000	1.163	0.3249	1.05	247	488	98%	2,003	100%
Cr	0.9999	1.535	0.173	1.01	249	--------	######	--------	######
Mn	1.0000	0.6303	0.06545	1.05	248	496	99%	2,001	100%
Fe	1.0000	2.099	18.68	19.83	5,019	9,972	100%	--------	######
Co	1.0000	4.784	0.09645	1.04	252	519	104%	1,995	100%
Ni	1.0000	1.394	0.07902	1.03	249	492	98%	2,002	100%
Cu	1.0000	3.723	0.4669	1.05	255	504	101%	1,998	100%
Zn	1.0000	0.3847	0.2802	1.28	261	511	102%	1,996	100%
As	1.0000	0.2316	0.1742	1.01	252	499	100%	2,000	100%
Se	1.0000	0.01415	0.009581	1.21	251	500	100%	2,000	100%
Sr	1.0000	0.3439	0.06934	1.01	251	495	99%	2,001	100%
Mo	1.0000	0.05919	0.002267	0.98	248	502	100%	--------	######
Ag	1.0000	0.1533	0.002021	1.00	252	499	100%	--------	######
Cd	1.0000	0.0328	0.0007325	0.97	247	489	98%	2,003	100%
Sn	1.0000	0.09083	0.007435	0.95	243	511	102%	1,998	100%
Sb	0.9999	0.1069	0.002337	0.95	245	503	101%	--------	######
Ba	0.9999	0.04217	0.003401	0.91	240	482	96%	2,006	100%
Tl	1.0000	0.3331	0.006798	0.95	255	502	100%	1,999	100%
Pb	1.0000	0.4539	0.0208	0.99	248	506	101%	1,999	100%

REVIEWED BY
By Janice Whitt at 11:07:05 AM, 8/11/2016

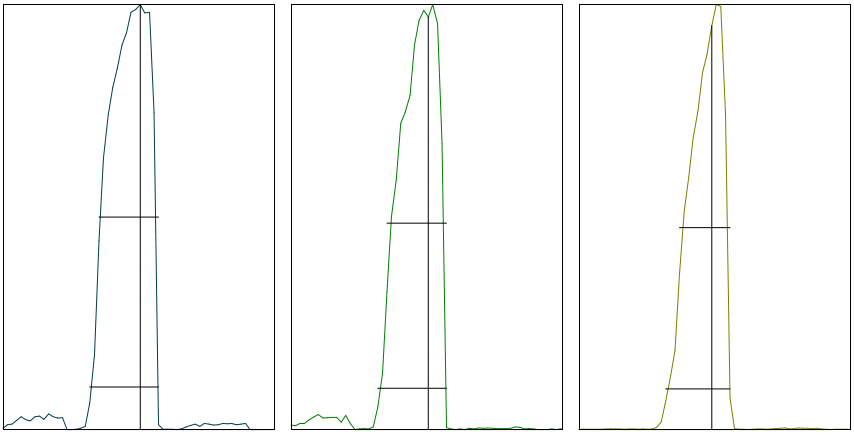
Tune Report

Tune File : He.U
Comment :



Integration Time:	0.1000 sec	
Sampling Period:	0.3100 sec	
n:	200	
Oxide:	156/140	0.385%
Doubly Charged:	70/140	2.643%

m/z	Range	Count	Mean	RSD%	Background
51	20	10.0	8.4	35.34	0.50
59	5,000	2195.0	2199.1	3.09	0.90
75	20	10.0	7.1	36.32	1.20
51/59	1	0.456%	0.382%	35.16	



m/z:	59	89	205
Height:	2,270	1,125	3,573
Axis:	59.05	89.05	205.00
W-50%:	0.65	0.65	0.55
W-10%:	0.7500	0.7500	0.700

Integration Time:	0.1000 sec
Acquisition Time:	22.5600 sec

Y axis : Linear

Generated : Aug 10, 2016 10:18:09
Printed : Aug 10, 2016 10:18:11

Tune Report

Tune File : He.U
Comment :

Tuning Parameters

===Plasma Condition===				===Ion Lenses===				===Q-Pole Parameters===			
RF Power	:	1600	W	Extract 1	:	0	V	AMU Gain	:	124	
RF Matching	:	1.6	V	Extract 2	:	-150	V	AMU Offset	:	120	
Smpl Depth	:	9	mm	Omega Bias-ce	:	-20	V	Axis Gain	:	0.9993	
Torch-H	:	0	mm	Omega Lens-ce	:	0	V	Axis Offset	:	-0.03	
Torch-V	:	0.8	mm	Cell Entrance	:	-40	V	QP Bias	:	-14.6	V
Carrier Gas	:	1.2	L/min	QP Focus	:	-10	V				
Makeup Gas	:	0	L/min	Cell Exit	:	-40	V	===Detector Parameters===			
Optional Gas	:	---	%					Discriminator	:	8	mV
Nebulizer Pump	:	0.1	rps	===Octopole Parameters===				Analog HV	:	1750	V
Sample Pump	:	---	rps	OctP RF	:	170	V	Pulse HV	:	1520	V
S/C Temp	:	2	degC	OctP Bias	:	-16	V				

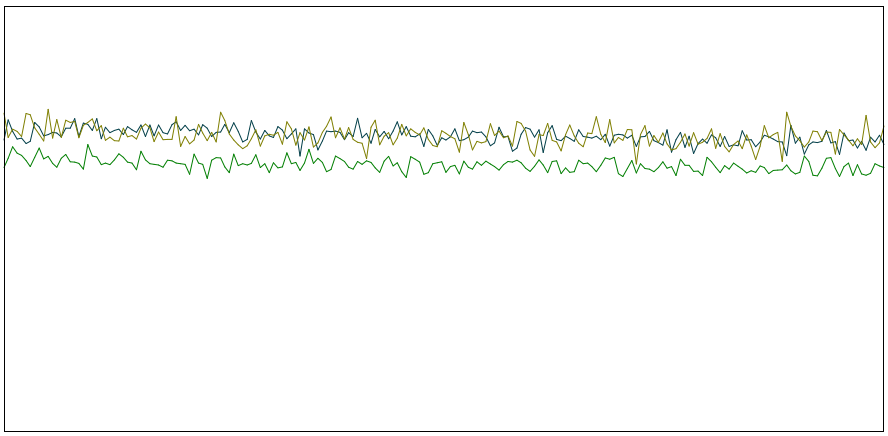
===Reaction Cell===

Reaction Mode	:	ON									
H2 Gas	:	0	mL/min	He Gas	:	4.8	mL/min	Optional Gas	:	---	%

Generated : Aug 10, 2016 10:18:09
Printed : Aug 10, 2016 10:18:13

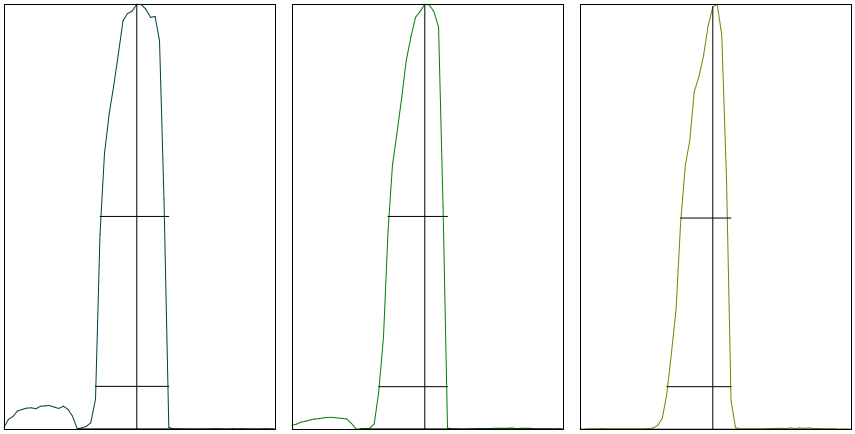
Tune Report

Tune File : nogas.u
Comment :



Integration Time:	0.1000 sec	
Sampling Period:	0.8200 sec	
n:	200	
Oxide:	156/140	1.004%
Doubly Charged:	70/140	3.091%

m/z	Range	Count	Mean	RSD%	Background
7	10,000	6748.0	6954.2	2.55	3.50
89	20,000	12414.0	12546.5	2.35	7.90
205	10,000	7187.0	6955.3	3.35	18.10
156/140	2	0.976%	0.984%	11.55	
70/140	5	2.759%	2.987%	12.13	
63	10,000	9316.0	9605.4	2.52	5.30
23	50,000	38173.0	40461.4	7.69	3.60



m/z:	7	89	205
Height:	6,849	12,456	7,056
Axis:	7.00	89.00	205.00
W-50%:	0.75	0.65	0.55
W-10%:	0.800	0.7500	0.700

Integration Time:	0.1000 sec
Acquisition Time:	22.7600 sec

Y axis : Linear

Generated : Aug 10, 2016 10:11:16
Printed : Aug 10, 2016 10:11:18

Tune Report

Tune File : nogas.u
Comment :

Tuning Parameters

===Plasma Condition===				===Ion Lenses===				===Q-Pole Parameters===			
RF Power	:	1600	W	Extract 1	:	0	V	AMU Gain	:	124	
RF Matching	:	1.6	V	Extract 2	:	-150	V	AMU Offset	:	120	
Smpl Depth	:	9	mm	Omega Bias-ce	:	-22	V	Axis Gain	:	0.9993	
Torch-H	:	0	mm	Omega Lens-ce	:	-1	V	Axis Offset	:	-0.03	
Torch-V	:	0.8	mm	Cell Entrance	:	-26	V	QP Bias	:	-3	V
Carrier Gas	:	1.2	L/min	QP Focus	:	0	V				
Makeup Gas	:	0	L/min	Cell Exit	:	-40	V	===Detector Parameters===			
Optional Gas	:	---	%					Discriminator	:	8	mV
Nebulizer Pump	:	0.1	rps	===Octopole Parameters===				Analog HV	:	1750	V
Sample Pump	:	---	rps	OctP RF	:	170	V	Pulse HV	:	1520	V
S/C Temp	:	2	degC	OctP Bias	:	-6	V				

===Reaction Cell===

Reaction Mode	:	OFF									
H2 Gas	:	0	mL/min	He Gas	:	0	mL/min	Optional Gas	:	---	%

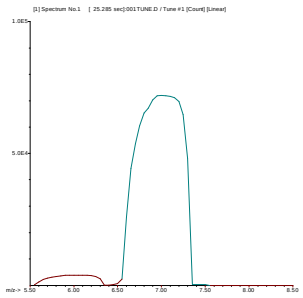
Generated : Aug 10, 2016 10:11:16
Printed : Aug 10, 2016 10:11:21

6020 QC Tune Report

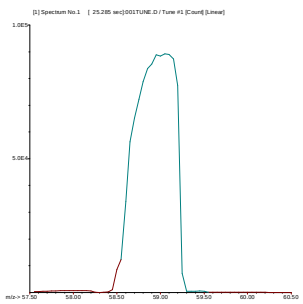
Data File: C:\ICPCHEM\1\DATA\16H10k00.B\001TUNE.D
Date Acquired: Aug 10 2016 10:25 am
Acq. Method: TN6020.M
Operator: KL
Sample Name: TUNE CHECK
Misc Info:
Vial Number: 1301
Current Method: C:\ICPCHEM\1\METHODS\TN6020.M

RSD (%)

Element	Actual	Required	Flag
7 Li	1.73	5.00	
59 Co	1.52	5.00	
115 In	0.92	5.00	
205 Tl	0.90	5.00	

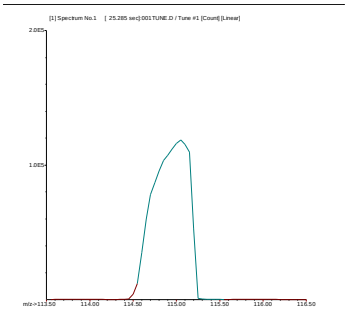


7 Li
Mass Calib.
Actual: 7.05
Required: 6.90 - 7.10
Flag:
Peak Width
Actual: 0.70
Required: 0.90
Flag:



59 Co
Mass Calib.
Actual: 59.05
Required: 58.90 - 59.10
Flag:
Peak Width
Actual: 0.60
Required: 0.90
Flag:

REVIEWED BY
By Janice Whitt at 11:07:10 AM, 8/11/2016



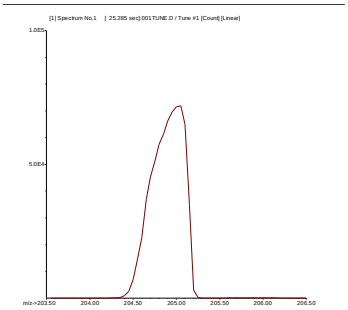
115 In

Mass Calib.

Actual:	115.05	
Required:	114.90 -	115.10
Flag:		

Peak Width

Actual:	0.60
Required:	0.90
Flag:	



205 Tl

Mass Calib.

Actual:	205.00	
Required:	204.90 -	205.10
Flag:		

Peak Width

Actual:	0.60
Required:	0.90
Flag:	

REVIEWED BY
By Janice Whitt at 11:07:32 AM, 8/11/2016

Calibration Blank QC Report

Acq. Method: DHL_3Fe.M Sample Name: BLANK STD 1
Operator: KL Instrument: ICPMS3
Last Cal. Update: Aug 10 2016 11:27 am
Date Acquired: Aug 10 2016 11:23 am

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)
6	Li	2	---	36.77	P	19.13	52.03
7	Li	2	45	771.16	P	25.02	3.24
9	Be	2	45	57.78	P	21.43	37.09
11	B	2	45	3726.25	P	104.10	2.79
23	Na	1	45	13352.08	P	101.40	0.76
24	Mg	1	45	503.36	P	72.19	14.34
27	Al	1	45	376.01	P	41.40	11.01
39	K	1	45	4699.97	P	296.10	6.30
44	Ca	2	45	11491.50	P	244.80	2.13
45	Sc	1	---	157844.09	P	1644.00	1.04
45	Sc	2	---	5827273.00	A	60900.00	1.05
47	Ti	1	45	3.11	P	3.36	107.87
51	V	1	45	256.45	P	8.47	3.30
51	V	2	---		P		
52	Cr	1	45	136.45	P	14.63	10.72
55	Mn	1	45	51.56	P	14.26	27.66
56	Fe	1	72	8091.08	P	747.10	9.23
59	Co	1	72	41.78	P	12.60	30.16
60	Ni	1	72	34.22	P	0.77	2.25
60	Ni	2	---		P		
63	Cu	1	72	202.23	P	25.80	12.76
63	Cu	2	---		P		
66	Zn	1	72	121.34	P	11.85	9.77
66	Zn	2	---		P		
72	Ge	1	---	86621.49	P	464.30	0.54
72	Ge	2	---		A		
75	As	1	72	75.44	P	2.32	3.08
78	Se	1	72	4.15	P	0.68	16.37
88	Sr	2	###	2175.85	P	30.05	1.38
95	Mo	2	###	71.11	P	19.25	27.07
107	Ag	2	###	63.34	P	21.86	34.51
111	Cd	2	###	23.01	P	9.54	41.47
115	In	2	---	6276207.00	A	44580.00	0.71
118	Sn	2	###	233.35	P	37.57	16.10
121	Sb	2	###	73.34	P	5.77	7.87
137	Ba	2	###	106.67	P	8.82	8.27
205	Tl	2	###	151.12	P	8.39	5.55
208	Pb	2	###	462.25	P	53.99	11.68
209	Bi	2	---	4446754.00	A	35290.00	0.79

Calibration Standard QC Report

Acq. Method: DHL_3Fe.M Sample Name: L2-160810
Operator: KL Instrument: ICPMS3
Date Acquired: Aug 10 2016 11:29 am
Last Cal. Update: Aug 10 2016 11:27 am

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)	Flag
6	Li	2	---	-328.35	P	19.46	5.93	ISFail
7	Li	2	45	8137.34	P	35.37	0.43	
9	Be	2	45	2439.22	P	57.39	2.35	
11	B	2	45	5671.50	P	203.50	3.59	
23	Na	1	45	18414.17	P	362.80	1.97	
24	Mg	1	45	2740.42	P	55.08	2.01	
27	Al	1	45	889.83	P	25.03	2.81	
39	K	1	45	5981.68	P	116.20	1.94	
44	Ca	2	45	17307.85	P	1365.00	7.89	
45	Sc	1	---	156019.70	P	2042.00	1.31	
45	Sc	2	---	5753219.00	A	103700.00	1.80	
47	Ti	1	45	21.33	P	3.53	16.54	
51	V	1	45	1208.08	P	57.62	4.77	
51	V	2	---		P			
52	Cr	1	45	1349.43	P	65.85	4.88	
55	Mn	1	45	565.35	P	77.88	13.78	
56	Fe	1	72	25863.22	P	777.10	3.00	
59	Co	1	72	2173.56	P	69.90	3.22	
60	Ni	1	72	649.81	P	44.81	6.90	
60	Ni	2	---		P			
63	Cu	1	72	1873.06	P	47.34	2.53	
63	Cu	2	---		P			
66	Zn	1	72	330.68	P	48.66	14.72	
66	Zn	2	---		P			
72	Ge	1	---	85788.02	P	840.50	0.98	
72	Ge	2	---		A			
75	As	1	72	174.74	P	4.47	2.56	
78	Se	1	72	11.48	P	1.39	12.10	
88	Sr	2	115	12990.83	P	150.40	1.16	
95	Mo	2	115	1889.12	P	177.40	9.39	
107	Ag	2	115	4866.74	P	56.82	1.17	
111	Cd	2	115	1017.47	P	47.71	4.69	
115	In	2	---	6256392.00	A	51380.00	0.82	
118	Sn	2	115	2939.38	P	130.90	4.45	
121	Sb	2	115	3259.47	P	56.41	1.73	
137	Ba	2	115	1307.91	P	122.80	9.39	
205	Tl	2	209	7082.51	P	241.20	3.41	
208	Pb	2	209	10285.66	P	46.71	0.45	
209	Bi	2	---	4395361.00	A	35260.00	0.80	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-328.35	5.93	36.77	-893.0	70 - 120	ISFail
45	Sc	1	156019.70	1.31	157844.06	98.8	70 - 120	
45	Sc	2	5753218.50	1.80	5827273.50	98.7	70 - 120	
72	Ge	1	85788.02	0.98	86621.49	99.0	70 - 120	
115	In	2	6256392.50	0.82	6276207.00	99.7	70 - 120	
209	Bi	2	4395361.00	0.80	4446753.50	98.8	70 - 120	

Calibration Standard QC Report

Acq. Method: DHL_3Fe.M Sample Name: L-160810
Operator: KL Instrument: ICPMS3
Date Acquired: Aug 10 2016 11:35 am
Last Cal. Update: Aug 10 2016 11:33 am

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)	Flag
6	Li	2	---	-3446.19	P	24.24	0.70	ISFail
7	Li	2	45	74023.09	P	803.60	1.09	Fail
9	Be	2	45	23731.76	P	450.30	1.90	Fail
11	B	2	45	22654.39	P	294.00	1.30	Fail
23	Na	1	45	62444.13	P	432.30	0.69	Fail
24	Mg	1	45	21934.39	P	787.50	3.59	Fail
27	Al	1	45	5561.32	P	208.90	3.76	Fail
39	K	1	45	16884.32	P	603.60	3.57	Fail
44	Ca	2	45	63351.58	P	1583.00	2.50	Fail
45	Sc	1	---	154506.50	P	1761.00	1.14	
45	Sc	2	---	5765751.00	A	98200.00	1.70	
47	Ti	1	45	234.23	P	28.79	12.29	Fail
51	V	1	45	9247.59	P	182.40	1.97	Fail
51	V	2	---		P			
52	Cr	1	45	12348.09	P	215.10	1.74	Fail
55	Mn	1	45	5062.45	P	94.05	1.86	Fail
56	Fe	1	72	185385.50	P	3934.00	2.12	Fail
59	Co	1	72	20770.16	P	359.00	1.73	
60	Ni	1	72	6012.67	P	207.60	3.45	Fail
60	Ni	2	---		P			
63	Cu	1	72	16708.88	P	634.70	3.80	Fail
63	Cu	2	---		P			
66	Zn	1	72	1811.72	P	55.16	3.04	Fail
66	Zn	2	---		P			
72	Ge	1	---	84879.22	P	755.20	0.89	
72	Ge	2	---		A			
75	As	1	72	1068.16	P	36.54	3.42	Fail
78	Se	1	72	65.82	P	1.45	2.20	Fail
88	Sr	2	115	104718.70	P	1624.00	1.55	Fail
95	Mo	2	115	18214.37	P	515.00	2.83	Fail
107	Ag	2	115	47348.87	P	548.90	1.16	Fail
111	Cd	2	115	10296.76	P	70.30	0.68	Fail
115	In	2	---	6293745.00	A	92900.00	1.48	
118	Sn	2	115	27584.96	P	664.80	2.41	Fail
121	Sb	2	115	32392.72	P	789.00	2.44	Fail
137	Ba	2	115	12473.77	P	154.70	1.24	Fail
205	Tl	2	209	69134.29	P	1115.00	1.61	Fail
208	Pb	2	209	96323.04	P	425.00	0.44	Fail
209	Bi	2	---	4398510.00	A	66790.00	1.52	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-3446.19	0.70	36.77	-9372.4	70 - 120	ISFail
45	Sc	1	154506.55	1.14	157844.06	97.9	70 - 120	
45	Sc	2	5765751.50	1.70	5827273.50	98.9	70 - 120	
72	Ge	1	84879.22	0.89	86621.49	98.0	70 - 120	
115	In	2	6293745.50	1.48	6276207.00	100.3	70 - 120	
209	Bi	2	4398510.00	1.52	4446753.50	98.9	70 - 120	

Calibration Standard QC Report

Acq. Method: DHL_3Fe.M Sample Name: 10X-160810
Operator: KL Instrument: ICPMS3
Date Acquired: Aug 10 2016 11:41 am
Last Cal. Update: Aug 10 2016 11:39 am

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)	Flag
6	Li	2	---	-16925.15	P	124.60	0.74	ISFail
7	Li	2	45	363170.19	P	5760.00	1.59	Fail
9	Be	2	45	117723.50	P	715.80	0.61	Fail
11	B	2	45	97217.87	P	1719.00	1.77	Fail
23	Na	1	45	257709.59	P	4337.00	1.68	Fail
24	Mg	1	45	105580.90	P	1684.00	1.60	Fail
27	Al	1	45	26057.05	P	655.20	2.51	Fail
39	K	1	45	64147.34	P	1129.00	1.76	Fail
44	Ca	2	45	264485.91	P	4460.00	1.69	Fail
45	Sc	1	---	154967.59	P	449.70	0.29	
45	Sc	2	---	5754845.00	A	82050.00	1.43	
47	Ti	1	45	1117.40	P	25.75	2.30	Fail
51	V	1	45	45041.05	P	864.60	1.92	Fail
51	V	2	---		P			
52	Cr	1	45	59896.97	P	1879.00	3.14	Fail
55	Mn	1	45	24399.85	P	828.30	3.39	Fail
56	Fe	1	72	918985.88	A	47070.00	5.12	Fail
59	Co	1	72	103000.50	P	1801.00	1.75	
60	Ni	1	72	29999.42	P	917.90	3.06	
60	Ni	2	---		P			
63	Cu	1	72	82424.35	P	2167.00	2.63	Fail
63	Cu	2	---		P			
66	Zn	1	72	8729.45	P	386.50	4.43	Fail
66	Zn	2	---		P			
72	Ge	1	---	84495.81	P	565.10	0.67	
72	Ge	2	---		A			
75	As	1	72	5056.71	P	165.10	3.27	Fail
78	Se	1	72	309.67	P	5.15	1.66	Fail
88	Sr	2	115	517301.50	P	9021.00	1.74	Fail
95	Mo	2	115	91068.24	P	806.60	0.89	Fail
107	Ag	2	115	235191.09	P	2666.00	1.13	Fail
111	Cd	2	115	51361.26	P	669.30	1.30	Fail
115	In	2	---	6274154.00	A	77530.00	1.24	
118	Sn	2	115	137732.20	P	2102.00	1.53	Fail
121	Sb	2	115	161537.70	P	2133.00	1.32	Fail
137	Ba	2	115	61993.64	P	752.70	1.21	Fail
205	Tl	2	209	348700.09	P	5832.00	1.67	Fail
208	Pb	2	209	482299.50	P	6717.00	1.39	Fail
209	Bi	2	---	4385129.00	A	23640.00	0.54	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-16925.15	0.74	36.77	-46030.3	70 - 120	ISFail
45	Sc	1	154967.56	0.29	157844.06	98.2	70 - 120	
45	Sc	2	5754844.50	1.43	5827273.50	98.8	70 - 120	
72	Ge	1	84495.81	0.67	86621.49	97.5	70 - 120	
115	In	2	6274154.50	1.24	6276207.00	100.0	70 - 120	
209	Bi	2	4385129.50	0.54	4446753.50	98.6	70 - 120	

Calibration Standard QC Report

Acq. Method: DHL_3Fe.M Sample Name: 5X-160810
Operator: KL Instrument: ICPMS3
Date Acquired: Aug 10 2016 11:47 am
Last Cal. Update: Aug 10 2016 11:45 am

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)	Flag
6	Li	2	---	-33999.55	P	841.10	2.47	ISFail
7	Li	2	45	724475.31	A	12440.00	1.72	Fail
9	Be	2	45	233784.20	P	2832.00	1.21	Fail
11	B	2	45	189854.91	P	3998.00	2.11	Fail
23	Na	1	45	498223.19	P	7132.00	1.43	Fail
24	Mg	1	45	211925.09	P	7472.00	3.53	Fail
27	Al	1	45	51322.30	P	1710.00	3.33	Fail
39	K	1	45	122943.10	P	512.20	0.42	Fail
44	Ca	2	45	512646.09	P	13140.00	2.56	Fail
45	Sc	1	---	152689.30	P	624.80	0.41	
45	Sc	2	---	5611635.00	A	96700.00	1.72	
47	Ti	1	45	2242.46	P	83.24	3.71	Fail
51	V	1	45	89126.53	P	2011.00	2.26	Fail
51	V	2	---		A			
52	Cr	1	45	119844.20	P	3672.00	3.06	
55	Mn	1	45	48634.02	P	1452.00	2.99	
56	Fe	1	72	1817413.00	A	40580.00	2.23	Fail
59	Co	1	72	204377.70	P	4944.00	2.42	
60	Ni	1	72	59600.60	P	1530.00	2.57	
60	Ni	2	---		P			
63	Cu	1	72	162708.41	P	3612.00	2.22	
63	Cu	2	---		P			
66	Zn	1	72	17136.57	P	316.90	1.85	Fail
66	Zn	2	---		P			
72	Ge	1	---	82968.47	P	313.80	0.38	
72	Ge	2	---		A			
75	As	1	72	9928.12	P	226.30	2.28	Fail
78	Se	1	72	618.24	P	13.49	2.18	Fail
88	Sr	2	115	1064290.00	A	19210.00	1.81	Fail
95	Mo	2	115	177487.50	P	2170.00	1.22	Fail
107	Ag	2	115	462284.91	P	5678.00	1.23	Fail
111	Cd	2	115	100039.20	P	1639.00	1.64	Fail
115	In	2	---	6104971.00	A	98290.00	1.61	
118	Sn	2	115	270212.81	P	3858.00	1.43	Fail
121	Sb	2	115	319318.19	P	3214.00	1.01	Fail
137	Ba	2	115	122455.10	P	1212.00	0.99	Fail
205	Tl	2	209	696208.88	P	7814.00	1.12	Fail
208	Pb	2	209	951484.69	P	8998.00	0.95	Fail
209	Bi	2	---	4305669.00	A	50180.00	1.17	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-33999.56	2.47	36.77	-92466.5	70 - 120	ISFail
45	Sc	1	152689.34	0.41	157844.06	96.7	70 - 120	
45	Sc	2	5611634.50	1.72	5827273.50	96.3	70 - 120	
72	Ge	1	82968.48	0.38	86621.49	95.8	70 - 120	
115	In	2	6104970.50	1.61	6276207.00	97.3	70 - 120	
209	Bi	2	4305669.00	1.17	4446753.50	96.8	70 - 120	

Calibration Standard QC Report

Acq. Method: DHL_3Fe.M Sample Name: 2X-160810
Operator: KL Instrument: ICPMS3
Date Acquired: Aug 10 2016 11:53 am
Last Cal. Update: Aug 10 2016 11:51 am

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)	Flag
6	Li	2	---	-79656.35	P	1985.00	2.49	ISFail
7	Li	2	45	1732888.00	A	28500.00	1.64	Fail
9	Be	2	45	571237.31	P	5775.00	1.01	Fail
11	B	2	45	454411.09	P	3383.00	0.74	Fail
23	Na	1	45	1251735.00	A	25840.00	2.06	Fail
24	Mg	1	45	519337.31	P	15240.00	2.93	
27	Al	1	45	126975.90	P	4337.00	3.42	Fail
39	K	1	45	298749.31	P	3502.00	1.17	Fail
44	Ca	2	45	1286593.00	A	26640.00	2.07	Fail
45	Sc	1	---	152296.50	P	633.40	0.42	
45	Sc	2	---	5472111.00	A	64810.00	1.18	
47	Ti	1	45	5645.38	P	148.10	2.62	
51	V	1	45	219021.59	P	5335.00	2.44	
51	V	2	---		A			
52	Cr	1	45	291330.81	P	7197.00	2.47	
55	Mn	1	45	118984.90	P	3218.00	2.70	
56	Fe	1	72	4350439.00	A	117800.00	2.71	
59	Co	1	72	497496.00	P	11230.00	2.26	
60	Ni	1	72	143370.30	P	3172.00	2.21	
60	Ni	2	---		P			
63	Cu	1	72	391464.50	P	8876.00	2.27	
63	Cu	2	---		A			
66	Zn	1	72	41493.13	P	965.10	2.33	Fail
66	Zn	2	---		P			
72	Ge	1	---	82448.43	P	478.20	0.58	
72	Ge	2	---		M			
75	As	1	72	24106.80	P	561.70	2.33	Fail
78	Se	1	72	1469.13	P	34.34	2.34	Fail
88	Sr	2	115	2507826.00	A	54600.00	2.18	Fail
95	Mo	2	115	427054.59	P	6922.00	1.62	Fail
107	Ag	2	115	1124659.00	A	11420.00	1.02	Fail
111	Cd	2	115	235766.20	P	4371.00	1.85	Fail
115	In	2	---	5818367.00	A	88790.00	1.53	
118	Sn	2	115	643320.31	P	11090.00	1.72	Fail
121	Sb	2	115	762252.69	P	10600.00	1.39	Fail
137	Ba	2	115	293872.69	P	3651.00	1.24	Fail
205	Tl	2	209	1768332.00	A	20360.00	1.15	Fail
208	Pb	2	209	2347279.00	A	23760.00	1.01	Fail
209	Bi	2	---	4163915.00	A	17870.00	0.43	

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2		-79656.36	2.49	36.77	-216636.5	70 -	120	ISFail
45	Sc	1		152296.45	0.42	157844.06	96.5	70 -	120	
45	Sc	2		5472111.50	1.18	5827273.50	93.9	70 -	120	
72	Ge	1		82448.43	0.58	86621.49	95.2	70 -	120	
115	In	2		5818367.50	1.53	6276207.00	92.7	70 -	120	
209	Bi	2		4163915.30	0.43	4446753.50	93.6	70 -	120	

Calibration Standard QC Report

Acq. Method: DHL_3Fe.M Sample Name: H-160810
Operator: KL Instrument: ICPMS3
Date Acquired: Aug 10 2016 11:59 am
Last Cal. Update: Aug 10 2016 11:57 am

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)	Flag
6	Li	2	---	-152111.80	P	1777.00	1.17	ISFail
7	Li	2	45	3354208.00	A	31470.00	0.94	Fail
9	Be	2	45	1074800.00	A	793.70	0.07	Fail
11	B	2	45	915593.81	A	4288.00	0.47	Fail
23	Na	1	45	2430604.00	A	37730.00	1.55	Fail
24	Mg	1	45	1071620.00	A	37510.00	3.50	
27	Al	1	45	253384.09	P	9365.00	3.70	Fail
39	K	1	45	592514.88	P	8144.00	1.37	Fail
44	Ca	2	45	2496344.00	A	25730.00	1.03	Fail
45	Sc	1	---	150944.70	P	592.40	0.39	
45	Sc	2	---	5370158.00	A	86780.00	1.62	
47	Ti	1	45	10957.01	P	481.60	4.40	
51	V	1	45	428728.59	P	12660.00	2.95	
51	V	2	---		A			
52	Cr	1	45	569223.88	P	14110.00	2.48	
55	Mn	1	45	235983.30	P	5414.00	2.29	
56	Fe	1	72	8429479.00	A	278300.00	3.30	
59	Co	1	72	998344.81	A	33180.00	3.32	
60	Ni	1	72	275846.41	P	5561.00	2.02	
60	Ni	2	---		M			
63	Cu	1	72	754637.31	P	15590.00	2.07	
63	Cu	2	---		A			
66	Zn	1	72	79187.46	P	1635.00	2.06	
66	Zn	2	---		P			
72	Ge	1	---	80473.09	P	435.80	0.54	
72	Ge	2	---		P			
75	As	1	72	46579.15	P	854.20	1.83	
78	Se	1	72	2850.22	P	71.20	2.50	
88	Sr	2	115	4732621.00	A	41080.00	0.87	Fail
95	Mo	2	115	825129.31	P	9393.00	1.14	Fail
107	Ag	2	115	2127568.00	A	11210.00	0.53	
111	Cd	2	115	445565.00	P	1737.00	0.39	Fail
115	In	2	---	5559739.00	A	40490.00	0.73	
118	Sn	2	115	1290863.00	A	17080.00	1.32	Fail
121	Sb	2	115	1494746.00	A	15710.00	1.05	Fail
137	Ba	2	115	565167.50	P	3596.00	0.64	Fail
205	Tl	2	209	3394220.00	A	5824.00	0.17	
208	Pb	2	209	4660657.00	A	31480.00	0.68	Fail
209	Bi	2	---	4057351.00	A	39750.00	0.98	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-152111.83	1.17	36.77	-413689.1	70 - 120	ISFail
45	Sc	1	150944.67	0.39	157844.06	95.6	70 - 120	
45	Sc	2	5370158.50	1.62	5827273.50	92.2	70 - 120	
72	Ge	1	80473.09	0.54	86621.49	92.9	70 - 120	
115	In	2	5559739.00	0.73	6276207.00	88.6	70 - 120	
209	Bi	2	4057350.80	0.98	4446753.50	91.2	70 - 120	

Calibration Standard QC Report

Acq. Method: DHL_3Fe.M Sample Name: H2-160810
Operator: KL Instrument: ICPMS3
Date Acquired: Aug 10 2016 12:05 pm
Last Cal. Update: Aug 10 2016 12:03 pm

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)	Flag
6	Li	2	---	-616473.50	P	2650.00	0.43	ISFail
7	Li	2	45	13670800.00	A	69170.00	0.51	Fail
9	Be	2	45	4122176.00	A	34070.00	0.83	
11	B	2	45	3637751.00	A	14700.00	0.40	Fail
23	Na	1	45	5869594.00	A	126000.00	2.15	Fail
24	Mg	1	45	2599353.00	A	70230.00	2.70	
27	Al	1	45	2474.95	P	94.59	3.82	Fail
39	K	1	45	1511420.00	A	38730.00	2.56	Fail
44	Ca	2	45	6139222.00	A	153100.00	2.49	Fail
45	Sc	1	---	151426.09	P	1263.00	0.83	
45	Sc	2	---	5420262.00	A	87790.00	1.62	
47	Ti	1	45	45931.27	P	1693.00	3.69	
51	V	1	45	1765041.00	A	66230.00	3.75	
51	V	2	---		A			
52	Cr	1	45	2302081.00	A	112900.00	4.90	
55	Mn	1	45	955336.69	A	56550.00	5.92	
56	Fe	1	72	17049.73	P	1483.00	8.70	Fail
59	Co	1	72	3812633.00	A	134700.00	3.53	
60	Ni	1	72	1114991.00	A	44920.00	4.03	
60	Ni	2	---		A			
63	Cu	1	72	2972362.00	A	103700.00	3.49	
63	Cu	2	---		A			
66	Zn	1	72	306760.41	P	8765.00	2.86	
66	Zn	2	---		A			
72	Ge	1	---	79885.80	P	592.50	0.74	
72	Ge	2	---		P			
75	As	1	72	185073.30	P	5638.00	3.05	
78	Se	1	72	11305.28	P	327.60	2.90	
88	Sr	2	115	19730250.00	A	255900.00	1.30	Fail
95	Mo	2	115	3543295.00	A	22830.00	0.64	
107	Ag	2	115	1420.19	P	265.60	18.70	Fail
111	Cd	2	115	1883541.00	A	8693.00	0.46	
115	In	2	---	5733262.00	A	40360.00	0.70	
118	Sn	2	115	5202843.00	A	38800.00	0.75	Fail
121	Sb	2	115	2048.06	P	294.40	14.38	Fail
137	Ba	2	115	2425181.00	A	32160.00	1.33	Fail
205	Tl	2	209	13437230.00	A	161800.00	1.20	
208	Pb	2	209	18304710.00	A	221400.00	1.21	
209	Bi	2	---	4035457.00	A	49250.00	1.22	

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2		-616473.56	0.43	36.77	#########	70 -	120	ISFail
45	Sc	1		151426.05	0.83	157844.06	95.9	70 -	120	
45	Sc	2		5420262.50	1.62	5827273.50	93.0	70 -	120	
72	Ge	1		79885.81	0.74	86621.49	92.2	70 -	120	
115	In	2		5733261.50	0.70	6276207.00	91.3	70 -	120	
209	Bi	2		4035457.00	1.22	4446753.50	90.8	70 -	120	

ICSA QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\016ICSA.D\016ICSA.D#

Date Acquired:	Aug 10 2016 12:23 pm	Sample Name:	**ICSA-160810**
Acq. Method:	DHL_3Fe.M	Misc Info:	ICSAICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 10 2016 01:05 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	RL S	RL Aq	Flag
7	Li	2	45	0.324	ppb	3.91	8.00	5.00	
9	Be	2	45	0.129	ppb	7.00	0.32	0.80	
11	B	2	45	8.018	ppb	0.60	30.00	30.00	
23	Na	1	45	101900.000	ppb	1.35	#######	#######	
24	Mg	1	45	87700.000	ppb	2.35	#######	#######	
27	Al	1	45	96110.000	ppb	2.66	#######	#######	
39	K	1	45	92240.000	ppb	1.02	#######	#######	
44	Ca	2	45	91140.000	ppb	1.71	#######	#######	
47	Ti	1	45	1925.000	ppb	2.62	10.00	10.00	
51	V	1	45	0.065	ppb	7.99	10.00	10.00	
52	Cr	1	45	0.957	ppb	4.25	8.00	5.00	
55	Mn	1	45	0.967	ppb	0.82	8.00	10.00	
56	Fe	1	72	93720.000	ppb	2.26	#######	#######	
59	Co	1	72	1.344	ppb	1.74	8.00	10.00	
60	Ni	1	72	0.525	ppb	4.30	8.00	10.00	
63	Cu	1	72	2.165	ppb	3.38	8.00	10.00	
66	Zn	1	72	2.336	ppb	5.77	10.00	5.00	
75	As	1	72	0.656	ppb	1.71	4.00	5.00	
78	Se	1	72	0.553	ppb	4.76	2.00	5.00	
88	Sr	2	115	1.198	ppb	3.12	10.00	10.00	
95	Mo	2	115	1975.000	ppb	1.13	8.00	5.00	
107	Ag	2	115	0.101	ppb	9.49	0.80	2.00	
111	Cd	2	115	0.332	ppb	11.93	1.20	1.00	
118	Sn	2	115	0.561	ppb	4.43	10.00	10.00	
121	Sb	2	115	0.160	ppb	7.02	4.00	2.50	
137	Ba	2	115	0.544	ppb	14.03	8.00	10.00	
205	Tl	2	209	0.274	ppb	7.24	4.00	1.50	
208	Pb	2	209	0.404	ppb	6.78	1.20	1.00	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-62.59	17.96	36.77	-170.2	70 - 120	ISFail
45	Sc	1	144664.08	0.15	157844.06	91.6	70 - 120	
45	Sc	2	5565209.50	2.13	5827273.50	95.5	70 - 120	
72	Ge	1	77422.91	0.57	86621.49	89.4	70 - 120	
115	In	2	5928991.50	1.45	6276207.00	94.5	70 - 120	
209	Bi	2	3705677.50	1.14	4446753.50	83.3	70 - 120	

ICS-AB QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\017ICSB.D\017ICSB.D#

Date Acquired:	Aug 10 2016 12:29 pm	Sample Name:	**ICSAB-160810**
Acq. Method:	DHL_3Fe.M	Misc Info:	ICSBICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 10 2016 01:05 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)			Flag
7	Li	2	45	0.23	ppb	8.75	---	80 -	120		
9	Be	2	45	0.05	ppb	30.48	---	80 -	120		
11	B	2	45	6.15	ppb	2.34	---	80 -	120		
23	Na	1	45	98370.00	ppb	1.62	100000.00	80 -	120		
24	Mg	1	45	90520.00	ppb	3.05	100000.00	80 -	120		
27	Al	1	45	95830.00	ppb	4.01	100000.00	80 -	120		
39	K	1	45	92790.00	ppb	2.12	100000.00	80 -	120		
44	Ca	2	45	93720.00	ppb	1.74	100000.00	80 -	120		
47	Ti	1	45	1970.00	ppb	3.17	---	80 -	120		
51	V	1	45	40.24	ppb	3.66	40.00	80 -	120		
52	Cr	1	45	21.23	ppb	3.64	20.00	80 -	120		
55	Mn	1	45	19.32	ppb	3.51	20.00	80 -	120		
56	Fe	1	72	94770.00	ppb	4.59	100000.00	80 -	120		
59	Co	1	72	40.68	ppb	3.40	40.00	80 -	120		
60	Ni	1	72	36.94	ppb	2.87	40.00	80 -	120		
63	Cu	1	72	20.18	ppb	2.83	20.00	80 -	120		
66	Zn	1	72	18.79	ppb	3.52	20.00	80 -	120		
75	As	1	72	20.15	ppb	2.11	20.00	80 -	120		
78	Se	1	72	19.24	ppb	9.13	20.00	80 -	120		
88	Sr	2	115	1.16	ppb	6.26	---	80 -	120		
95	Mo	2	115	2077.00	ppb	1.33	---	80 -	120		
107	Ag	2	115	18.45	ppb	1.32	20.00	80 -	120		
111	Cd	2	115	9.29	ppb	5.45	10.00	80 -	120		
118	Sn	2	115	0.54	ppb	14.11	---	80 -	120		
121	Sb	2	115	0.06	ppb	9.60	---	80 -	120		
137	Ba	2	115	0.51	ppb	5.35	---	80 -	120		
205	Tl	2	209	0.15	ppb	5.39	---	80 -	120		
208	Pb	2	209	0.37	ppb	9.16	---	80 -	120		

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	-29.01	17.82	36.77	-78.9	70 -	120		ISFail
45	Sc	1	141553.92	0.22	157844.06	89.7	70 -	120		
45	Sc	2	5969840.50	1.76	5827273.50	102.4	70 -	120		
72	Ge	1	77063.06	0.73	86621.49	89.0	70 -	120		
115	In	2	6082927.00	0.62	6276207.00	96.9	70 -	120		
209	Bi	2	3667072.80	1.03	4446753.50	82.5	70 -	120		

CCV QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\020ICV.D\020ICV.D#

Date Acquired:	Aug 10 2016 12:47 pm	Sample Name:	**ICV1-160810**
Acq. Method:	DHL_3Fe.M	Misc Info:	ICV ICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 10 2016 01:05 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	133.60	ppb	1.77	100.00	90 -	110	133.6	Fail
9	Be	2	45	117.10	ppb	1.44	100.00	90 -	110	117.1	Fail
11	B	2	45	109.80	ppb	2.42	100.00	90 -	110	109.8	
23	Na	1	45	2852.00	ppb	3.97	2500.00	90 -	110	114.1	Fail
24	Mg	1	45	2602.00	ppb	4.03	2500.00	90 -	110	104.1	
27	Al	1	45	2335.00	ppb	3.14	2500.00	90 -	110	93.4	
39	K	1	45	2467.00	ppb	1.52	2500.00	90 -	110	98.7	
44	Ca	2	45	2546.00	ppb	3.83	2500.00	90 -	110	101.8	
47	Ti	1	45	99.15	ppb	3.69	100.00	90 -	110	99.2	
51	V	1	45	105.00	ppb	3.63	100.00	90 -	110	105.0	
52	Cr	1	45	109.70	ppb	3.70	100.00	90 -	110	109.7	
55	Mn	1	45	98.48	ppb	3.49	100.00	90 -	110	98.5	
56	Fe	1	72	2611.00	ppb	3.90	2500.00	90 -	110	104.4	
59	Co	1	72	106.50	ppb	2.97	100.00	90 -	110	106.5	
60	Ni	1	72	104.10	ppb	1.95	100.00	90 -	110	104.1	
63	Cu	1	72	106.20	ppb	2.29	100.00	90 -	110	106.2	
66	Zn	1	72	103.90	ppb	3.06	100.00	90 -	110	103.9	
75	As	1	72	101.00	ppb	1.70	100.00	90 -	110	101.0	
78	Se	1	72	93.51	ppb	2.87	100.00	90 -	110	93.5	
88	Sr	2	115	112.40	ppb	2.00	100.00	90 -	110	112.4	Fail
95	Mo	2	115	102.90	ppb	1.87	100.00	90 -	110	102.9	
107	Ag	2	115	101.20	ppb	1.60	100.00	90 -	110	101.2	
111	Cd	2	115	98.92	ppb	2.13	100.00	90 -	110	98.9	
118	Sn	2	115	96.57	ppb	1.44	100.00	90 -	110	96.6	
121	Sb	2	115	96.82	ppb	1.91	100.00	90 -	110	96.8	
137	Ba	2	115	94.41	ppb	1.87	100.00	90 -	110	94.4	
205	Tl	2	209	97.04	ppb	1.27	100.00	90 -	110	97.0	
208	Pb	2	209	97.52	ppb	1.65	100.00	90 -	110	97.5	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	-28291.06	4.87	36.77	-76941.5	70 -	120		ISFail
45	Sc	1	154570.78	0.40	157844.06	97.9	70 -	120		
45	Sc	2	6889101.50	2.78	5827273.50	118.2	70 -	120		
72	Ge	1	86927.37	0.80	86621.49	100.4	70 -	120		
115	In	2	6576274.50	1.50	6276207.00	104.8	70 -	120		
209	Bi	2	4138242.50	1.88	4446753.50	93.1	70 -	120		

CCV QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\022ICV.D\022ICV.D#

Date Acquired:	Aug 10 2016 12:59 pm	Sample Name:	**ICV1-160810**
Acq. Method:	DHL_3Fe.M	Misc Info:	ICV ICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 10 2016 01:05 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	134.50	ppb	1.34	100.00	90 -	110	134.5	Fail
9	Be	2	45	118.30	ppb	2.41	100.00	90 -	110	118.3	Fail
11	B	2	45	111.00	ppb	2.05	100.00	90 -	110	111.0	Fail
23	Na	1	45	2936.00	ppb	2.32	2500.00	90 -	110	117.4	Fail
24	Mg	1	45	2637.00	ppb	3.26	2500.00	90 -	110	105.5	
27	Al	1	45	2382.00	ppb	3.48	2500.00	90 -	110	95.3	
39	K	1	45	2493.00	ppb	2.20	2500.00	90 -	110	99.7	
44	Ca	2	45	2506.00	ppb	4.78	2500.00	90 -	110	100.2	
47	Ti	1	45	98.40	ppb	5.68	100.00	90 -	110	98.4	
51	V	1	45	105.20	ppb	3.66	100.00	90 -	110	105.2	
52	Cr	1	45	110.50	ppb	3.70	100.00	90 -	110	110.5	Fail
55	Mn	1	45	99.71	ppb	2.41	100.00	90 -	110	99.7	
56	Fe	1	72	2619.00	ppb	3.33	2500.00	90 -	110	104.8	
59	Co	1	72	107.90	ppb	2.61	100.00	90 -	110	107.9	
60	Ni	1	72	106.00	ppb	3.24	100.00	90 -	110	106.0	
63	Cu	1	72	107.40	ppb	2.83	100.00	90 -	110	107.4	
66	Zn	1	72	105.20	ppb	2.29	100.00	90 -	110	105.2	
75	As	1	72	102.40	ppb	2.09	100.00	90 -	110	102.4	
78	Se	1	72	95.97	ppb	4.28	100.00	90 -	110	96.0	
88	Sr	2	115	114.90	ppb	1.13	100.00	90 -	110	114.9	Fail
95	Mo	2	115	104.50	ppb	1.90	100.00	90 -	110	104.5	
107	Ag	2	115	101.80	ppb	1.48	100.00	90 -	110	101.8	
111	Cd	2	115	100.60	ppb	1.64	100.00	90 -	110	100.6	
118	Sn	2	115	97.71	ppb	2.23	100.00	90 -	110	97.7	
121	Sb	2	115	97.73	ppb	1.54	100.00	90 -	110	97.7	
137	Ba	2	115	96.22	ppb	1.82	100.00	90 -	110	96.2	
205	Tl	2	209	97.08	ppb	1.01	100.00	90 -	110	97.1	
208	Pb	2	209	97.68	ppb	1.35	100.00	90 -	110	97.7	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	-27573.77	2.48	36.77	-74990.7	70 -	120		ISFail
45	Sc	1	154283.36	0.69	157844.06	97.7	70 -	120		
45	Sc	2	6908818.00	2.71	5827273.50	118.6	70 -	120		
72	Ge	1	85934.37	1.11	86621.49	99.2	70 -	120		
115	In	2	6362271.00	1.52	6276207.00	101.4	70 -	120		
209	Bi	2	4051822.50	0.55	4446753.50	91.1	70 -	120		

CCV QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\023LCVL.D\023LCVL.D#

Date Acquired:	Aug 10 2016 01:05 pm	Sample Name:	**ILCVL-160810**
Acq. Method:	DHL_3Fe.M	Misc Info:	LCVLICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 10 2016 01:05 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	14.61	ppb	2.75	10.00	70 -	130	146.1	Fail
9	Be	2	45	1.28	ppb	2.90	1.00	70 -	130	127.9	
11	B	2	45	25.21	ppb	2.50	20.00	70 -	130	126.1	
23	Na	1	45	129.00	ppb	0.61	100.00	70 -	130	129.0	
24	Mg	1	45	107.70	ppb	3.02	100.00	70 -	130	107.7	
27	Al	1	45	100.70	ppb	2.97	100.00	70 -	130	100.7	
39	K	1	45	109.90	ppb	1.36	100.00	70 -	130	109.9	
44	Ca	2	45	96.93	ppb	2.01	100.00	70 -	130	96.9	
47	Ti	1	45	5.02	ppb	5.82	5.00	70 -	130	100.3	
51	V	1	45	1.12	ppb	3.78	1.00	70 -	130	111.8	
52	Cr	1	45	5.69	ppb	2.72	5.00	70 -	130	113.7	
55	Mn	1	45	5.13	ppb	2.54	5.00	70 -	130	102.6	
56	Fe	1	72	111.90	ppb	2.66	100.00	70 -	130	111.9	
59	Co	1	72	5.53	ppb	1.89	5.00	70 -	130	110.6	
60	Ni	1	72	5.53	ppb	5.77	5.00	70 -	130	110.5	
63	Cu	1	72	5.67	ppb	2.24	5.00	70 -	130	113.4	
66	Zn	1	72	5.15	ppb	3.33	5.00	70 -	130	103.0	
75	As	1	72	5.58	ppb	2.76	5.00	70 -	130	111.6	
78	Se	1	72	5.22	ppb	0.92	5.00	70 -	130	104.5	
88	Sr	2	115	5.73	ppb	1.29	5.00	70 -	130	114.7	
95	Mo	2	115	5.60	ppb	3.27	5.00	70 -	130	112.0	
107	Ag	2	115	2.18	ppb	3.09	2.00	70 -	130	108.9	
111	Cd	2	115	1.08	ppb	6.38	1.00	70 -	130	107.9	
118	Sn	2	115	5.10	ppb	1.76	5.00	70 -	130	102.0	
121	Sb	2	115	2.07	ppb	1.55	2.00	70 -	130	103.5	
137	Ba	2	115	4.79	ppb	2.65	5.00	70 -	130	95.8	
205	Tl	2	209	1.19	ppb	2.87	1.00	70 -	130	119.2	
208	Pb	2	209	1.10	ppb	1.09	1.00	70 -	130	109.7	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2 RHigh	-2938.40	6.35	36.77	-7991.4	70 -	120	ISFail
45	Sc	1	156003.47	1.14	157844.06	98.8	70 -	120	
45	Sc	2	6769750.50	2.03	5827273.50	116.2	70 -	120	
72	Ge	1	87067.64	1.39	86621.49	100.5	70 -	120	
115	In	2	6360994.00	1.47	6276207.00	101.4	70 -	120	
209	Bi	2	4069238.30	1.80	4446753.50	91.5	70 -	120	

ICB QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\024_ICB.D\024_ICB.D#

Date Acquired:	Aug 10 2016 01:11 pm	Sample Name:	**ICB1-160810**
Acq. Method:	DHL_3Fe.M	Misc Info:	ICB ICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 10 2016 01:05 pm	Instrument:	ICPMS3

QC Elements

Element				Conc.		RSD(%)	High Limit	Flag
7	Li	2	45	0.22	ppb	7.04	2.00	
9	Be	2	45	0.07	ppb	24.15	0.40	
11	B	2	45	2.98	ppb	1.41	10.00	
23	Na	1	45	13.00	ppb	1.57	50.00	
24	Mg	1	45	0.69	ppb	11.11	50.00	
27	Al	1	45	2.96	ppb	1.79	50.00	
39	K	1	45	3.15	ppb	0.94	50.00	
44	Ca	2	45	10.76	ppb	4.80	50.00	
47	Ti	1	45	0.08	ppb	41.67	4.00	
51	V	1	45	-0.02	ppb	10.93	4.00	
52	Cr	1	45	0.10	ppb	9.78	2.00	
55	Mn	1	45	0.08	ppb	18.10	2.00	
56	Fe	1	72	1.31	ppb	8.28	50.00	
59	Co	1	72	0.06	ppb	13.76	2.00	
60	Ni	1	72	0.07	ppb	3.94	2.00	
63	Cu	1	72	0.11	ppb	5.06	2.00	
66	Zn	1	72	-0.21	ppb	8.43	4.00	
75	As	1	72	0.20	ppb	4.65	2.00	
78	Se	1	72	0.30	ppb	17.09	0.60	
88	Sr	2	115	0.16	ppb	5.97	4.00	
95	Mo	2	115	0.14	ppb	12.66	2.00	
107	Ag	2	115	0.04	ppb	19.84	0.40	
111	Cd	2	115	0.04	ppb	25.93	0.40	
118	Sn	2	115	0.13	ppb	7.54	20.00	
121	Sb	2	115	0.06	ppb	1.40	2.00	
137	Ba	2	115	0.07	ppb	5.16	2.00	
205	Tl	2	209	0.14	ppb	2.98	2.00	
208	Pb	2	209	0.09	ppb	7.41	0.40	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2 RHig	-61.21	26.40	36.77	-166.5	70 - 120	ISFail
45	Sc	1	155618.23	0.74	157844.06	98.6	70 - 120	
45	Sc	2	6799310.00	2.24	5827273.50	116.7	70 - 120	
72	Ge	1	87826.74	0.71	86621.49	101.4	70 - 120	
115	In	2	6371903.50	1.57	6276207.00	101.5	70 - 120	
209	Bi	2	4064265.30	0.93	4446753.50	91.4	70 - 120	

DT QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\043DT1.D\043DT1.D#

Date Acquired:	Aug 10 2016 03:15 pm	Sample Name:	**1607294-09A SD**
Acq. Method:	DHL_3Fe.M	Misc Info:	SD ICPMS_TSDOD1
Operator:	KL	Bench Diln:	25.00
Last Cal. Update:	Aug 10 2016 01:05 pm	Auto Diln:	Undiluted
Instrument:	ICPMS3	Total Diln:	25.00

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	17.67	ppb	0.67	-3442.13	90 -	110	-2.6	
9	Be	2	45	0.63	ppb	5.02	3.02	90 -	110	104.6	GOOD
11	B	2	45	25.07	ppb	2.68	106.90	90 -	110	117.3	
23	Na	1	45	1108.00	ppb	2.04	5744.00	90 -	110	96.4	GOOD
24	Mg	1	45	3199.00	ppb	3.59	16290.00	90 -	110	98.2	GOOD
27	Al	1	45	13430.00	ppb	4.35	68890.00	90 -	110	97.5	GOOD
39	K	1	45	3067.00	ppb	2.18	15750.00	90 -	110	97.4	GOOD
44	Ca	2	45	31350.00	ppb	2.51	154000.00	90 -	110	101.8	GOOD
47	Ti	1	45	60.39	ppb	0.22	306.90	90 -	110	98.4	GOOD
51	V	1	45	21.52	ppb	3.32	107.30	90 -	110	100.3	GOOD
52	Cr	1	45	12.23	ppb	4.06	60.46	90 -	110	101.1	GOOD
55	Mn	1	45	155.30	ppb	3.77	754.20	90 -	110	103.0	GOOD
56	Fe	1	72	14020.00	ppb	3.33	69200.00	90 -	110	101.3	GOOD
59	Co	1	72	5.96	ppb	2.52	29.54	90 -	110	100.8	GOOD
60	Ni	1	72	9.41	ppb	2.69	45.75	90 -	110	102.9	GOOD
63	Cu	1	72	5.16	ppb	4.06	24.51	90 -	110	105.3	GOOD
66	Zn	1	72	47.56	ppb	2.56	211.80	90 -	110	112.3	
75	As	1	72	4.85	ppb	5.23	23.15	90 -	110	104.7	GOOD
78	Se	1	72	3.14	ppb	4.02	14.40	90 -	110	109.1	GOOD
88	Sr	2	115	96.76	ppb	1.78	478.00	90 -	110	101.2	GOOD
95	Mo	2	115	0.38	ppb	4.93	1.68	90 -	110	112.2	
107	Ag	2	115	0.06	ppb	11.28	0.26	90 -	110	122.3	
111	Cd	2	115	0.23	ppb	22.85	1.10	90 -	110	107.0	GOOD
118	Sn	2	115	2.05	ppb	2.56	10.12	90 -	110	101.1	GOOD
121	Sb	2	115	0.26	ppb	5.34	1.06	90 -	110	120.7	
137	Ba	2	115	109.00	ppb	1.17	554.80	90 -	110	98.2	GOOD
205	Tl	2	209	0.19	ppb	3.15	0.75	90 -	110	127.9	
208	Pb	2	209	14.31	ppb	1.47	73.78	90 -	110	97.0	GOOD

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	-3442.13	2.67	36.77	-9361.4	70 -	120	ISFail
45	Sc	1	167941.36	1.05	157844.06	106.4	70 -	120	
45	Sc	2	6425786.00	2.77	5827273.50	110.3	70 -	120	
72	Ge	1	90857.88	0.63	86621.49	104.9	70 -	120	
115	In	2	6501785.50	1.17	6276207.00	103.6	70 -	120	
209	Bi	2	4224544.50	0.83	4446753.50	95.0	70 -	120	

PDS QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\044_PDS.D\044_PDS.D#

Date Acquired:	Aug 10 2016 03:21 pm	Sample Name:	**1607294-09A PDS**
Acq. Method:	DHL_3Fe.M	Misc Info:	PDS ICPMS_TSDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	Aug 10 2016 01:05 pm	Auto Diln:	Undiluted
Instrument:	ICPMS3	Total Diln:	5.00

QC Elements

Element				Conc.		RSD(%)	Ref Conc	Spike	Range	Rec(%)	Flag
7	Li	2	45	311.80	ppb	1.92	-60184.45	200	75-125	######	Fail
9	Be	2	45	206.40	ppb	0.78	3.02	200	75-125	101.7	
11	B	2	45	301.70	ppb	2.04	106.90	200	75-125	97.4	
23	Na	1	45	10690.00	ppb	2.12	5744.00	5000	75-125	98.9	
24	Mg	1	45	21310.00	ppb	1.66	16290.00	5000	75-125	100.4	
27	Al	1	45	74800.00	ppb	3.52	68890.00	5000	75-125	118.2	
39	K	1	45	21050.00	ppb	1.55	15750.00	5000	75-125	106.0	
44	Ca	2	45	160900.00	ppb	2.03	154000.00	5000	75-125	138.0	Fail
47	Ti	1	45	517.00	ppb	3.24	306.90	200	75-125	105.1	
51	V	1	45	304.10	ppb	2.59	107.30	200	75-125	98.4	
52	Cr	1	45	256.80	ppb	2.89	60.46	200	75-125	98.2	
55	Mn	1	45	957.20	ppb	2.89	754.20	200	75-125	101.5	
56	Fe	1	72	76080.00	ppb	3.07	69200.00	5000	75-125	137.6	Fail
59	Co	1	72	224.30	ppb	2.19	29.54	200	75-125	97.4	
60	Ni	1	72	232.30	ppb	1.94	45.75	200	75-125	93.3	
63	Cu	1	72	208.20	ppb	1.95	24.51	200	75-125	91.8	
66	Zn	1	72	392.40	ppb	2.48	211.80	200	75-125	90.3	
75	As	1	72	210.90	ppb	1.84	23.15	200	75-125	93.9	
78	Se	1	72	189.90	ppb	1.84	14.40	200	75-125	87.8	
88	Sr	2	115	687.50	ppb	1.81	478.00	200	75-125	104.8	
95	Mo	2	115	198.50	ppb	2.02	1.68	200	75-125	98.4	
107	Ag	2	115	182.20	ppb	1.62	0.26	200	75-125	91.0	
111	Cd	2	115	180.60	ppb	1.43	1.10	200	75-125	89.8	
118	Sn	2	115	203.00	ppb	1.16	10.12	200	75-125	96.4	
121	Sb	2	115	186.30	ppb	1.41	1.06	200	75-125	92.6	
137	Ba	2	115	786.40	ppb	1.88	554.80	200	75-125	115.8	
205	Tl	2	209	207.30	ppb	2.69	0.75	200	75-125	103.3	
208	Pb	2	209	274.40	ppb	1.40	73.78	200	75-125	100.3	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-60184.45	3.06	36.77	-163679.9	70 - 120	ISFail
45	Sc	1	161731.20	0.42	157844.06	102.5	70 - 120	
45	Sc	2	6242884.50	1.83	5827273.50	107.1	70 - 120	
72	Ge	1	85202.16	0.59	86621.49	98.4	70 - 120	
115	In	2	6248320.00	1.23	6276207.00	99.6	70 - 120	
209	Bi	2	3872849.50	1.06	4446753.50	87.1	70 - 120	

MS/MSD QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\045_MS.D\045_MS.D#

Date Acquired:	Aug 10 2016 03:27 pm	Sample Name:	**1607294-09A MS**
Acq. Method:	DHL_3Fe.M	Misc Info:	MS ICPMS_TSDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	Aug 10 2016 01:05 pm	Auto Diln:	Undiluted
Instrument:	ICPMS3	Total Diln:	5.00

QC Elements

Element				Conc.		RSD(%)	Ref Conc	Spike	Range	Rec(%)	Flag
7	Li	2	45	320.30	ppb	1.68	########	200	80-120	######	Fail
9	Be	2	45	209.00	ppb	1.44	3.02	200	80-120	103.0	
11	B	2	45	309.50	ppb	2.09	106.90	200	80-120	101.3	
23	Na	1	45	10620.00	ppb	2.74	5744.00	5000	80-120	97.5	
24	Mg	1	45	21610.00	ppb	2.64	16290.00	5000	80-120	106.4	
27	Al	1	45	75510.00	ppb	3.29	68890.00	1000	80-120	662.0	Fail
39	K	1	45	21650.00	ppb	1.40	15750.00	5000	80-120	118.0	
44	Ca	2	45	165200.00	ppb	2.55	########	5000	80-120	224.0	Fail
47	Ti	1	45	638.50	ppb	3.67	306.90	200	80-120	165.8	Fail
51	V	1	45	314.40	ppb	2.24	107.30	200	80-120	103.6	
52	Cr	1	45	258.20	ppb	2.85	60.46	200	80-120	98.9	
55	Mn	1	45	1070.00	ppb	2.89	754.20	200	80-120	157.9	Fail
56	Fe	1	72	70900.00	ppb	2.58	69200.00	1000	80-120	170.0	Fail
59	Co	1	72	233.20	ppb	2.39	29.54	200	80-120	101.8	
60	Ni	1	72	241.40	ppb	1.90	45.75	200	80-120	97.8	
63	Cu	1	72	216.40	ppb	2.40	24.51	200	80-120	95.9	
66	Zn	1	72	409.10	ppb	2.15	211.80	200	80-120	98.7	
75	As	1	72	214.30	ppb	1.99	23.15	200	80-120	95.6	
78	Se	1	72	194.20	ppb	2.70	14.40	200	80-120	89.9	
88	Sr	2	115	730.10	ppb	1.81	478.00	200	80-120	126.1	Fail
95	Mo	2	115	192.00	ppb	2.07	1.68	200	80-120	95.2	
107	Ag	2	115	184.30	ppb	1.96	0.26	200	80-120	92.0	
111	Cd	2	115	187.50	ppb	2.04	1.10	200	80-120	93.2	
118	Sn	2	115	201.60	ppb	1.80	10.12	200	80-120	95.7	
121	Sb	2	115	46.66	ppb	1.66	1.06	200	80-120	22.8	Fail
137	Ba	2	115	822.10	ppb	1.09	554.80	200	80-120	133.7	Fail
205	Tl	2	209	216.70	ppb	1.33	0.75	200	80-120	108.0	
208	Pb	2	209	297.70	ppb	1.32	73.78	200	80-120	112.0	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	-95289.85	2.05	36.77	########	70	-	120	ISFail
45	Sc	1	161990.89	0.39	157844.06	102.6	70	-	120	
45	Sc	2	6354399.50	1.98	5827273.50	109.0	70	-	120	
72	Ge	1	85002.87	0.15	86621.49	98.1	70	-	120	
115	In	2	6244975.00	0.98	6276207.00	99.5	70	-	120	
209	Bi	2	3860573.30	1.91	4446753.50	86.8	70	-	120	

MS/MSD QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\046_MS.D\046_MS.D#

Date Acquired:	Aug 10 2016 03:32 pm	Sample Name:	**1607294-09A MSD**
Acq. Method:	DHL_3Fe.M	Misc Info:	MSD ICPMS_TSDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	Aug 10 2016 01:05 pm	Auto Diln:	Undiluted
Instrument:	ICPMS3	Total Diln:	5.00

QC Elements

Element				Conc.		RSD(%)	Ref Conc	Spike	Range	Rec(%)	Flag
7	Li	2	45	312.20	ppb	1.49	########	200	80-120	######	Fail
9	Be	2	45	203.50	ppb	1.46	3.02	200	80-120	100.2	
11	B	2	45	298.50	ppb	2.84	106.90	200	80-120	95.8	
23	Na	1	45	10280.00	ppb	1.62	5744.00	5000	80-120	90.7	
24	Mg	1	45	21290.00	ppb	2.36	16290.00	5000	80-120	100.0	
27	Al	1	45	74270.00	ppb	3.50	68890.00	1000	80-120	538.0	Fail
39	K	1	45	21080.00	ppb	1.97	15750.00	5000	80-120	106.6	
44	Ca	2	45	165000.00	ppb	2.64	########	5000	80-120	220.0	Fail
47	Ti	1	45	612.00	ppb	2.89	306.90	200	80-120	152.6	Fail
51	V	1	45	305.30	ppb	2.64	107.30	200	80-120	99.0	
52	Cr	1	45	254.00	ppb	2.37	60.46	200	80-120	96.8	
55	Mn	1	45	972.80	ppb	1.68	754.20	200	80-120	109.3	
56	Fe	1	72	67340.00	ppb	2.60	69200.00	1000	80-120	-186.0	Fail
59	Co	1	72	222.70	ppb	2.38	29.54	200	80-120	96.6	
60	Ni	1	72	231.60	ppb	1.69	45.75	200	80-120	92.9	
63	Cu	1	72	212.70	ppb	1.58	24.51	200	80-120	94.1	
66	Zn	1	72	393.80	ppb	2.18	211.80	200	80-120	91.0	
75	As	1	72	209.20	ppb	1.73	23.15	200	80-120	93.0	
78	Se	1	72	189.00	ppb	0.80	14.40	200	80-120	87.3	
88	Sr	2	115	709.60	ppb	1.17	478.00	200	80-120	115.8	
95	Mo	2	115	187.20	ppb	1.49	1.68	200	80-120	92.8	
107	Ag	2	115	180.10	ppb	1.76	0.26	200	80-120	89.9	
111	Cd	2	115	183.60	ppb	1.33	1.10	200	80-120	91.3	
118	Sn	2	115	196.20	ppb	1.67	10.12	200	80-120	93.0	
121	Sb	2	115	46.51	ppb	0.98	1.06	200	80-120	22.7	Fail
137	Ba	2	115	841.70	ppb	1.93	554.80	200	80-120	143.5	Fail
205	Tl	2	209	209.20	ppb	1.44	0.75	200	80-120	104.2	
208	Pb	2	209	449.40	ppb	1.59	73.78	200	80-120	187.8	Fail

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	-92929.43	1.73	36.77	########	70	-	120	ISFail
45	Sc	1	162675.55	0.34	157844.06	103.1	70	-	120	
45	Sc	2	6371595.50	2.53	5827273.50	109.3	70	-	120	
72	Ge	1	85552.65	0.42	86621.49	98.8	70	-	120	
115	In	2	6269330.50	1.45	6276207.00	99.9	70	-	120	
209	Bi	2	3864451.30	0.22	4446753.50	86.9	70	-	120	

CCV QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\047CCV1.D\047CCV1.D#

Date Acquired:	Aug 10 2016 03:38 pm	Sample Name:	**CCV1-160810**
Acq. Method:	DHL_3Fe.M	Misc Info:	CCV ICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 10 2016 01:05 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	241.10	ppb	1.13	200.00	90 -	110	120.6	Fail
9	Be	2	45	223.20	ppb	1.61	200.00	90 -	110	111.6	Fail
11	B	2	45	215.00	ppb	1.77	200.00	90 -	110	107.5	
23	Na	1	45	5548.00	ppb	2.20	5000.00	90 -	110	111.0	Fail
24	Mg	1	45	5207.00	ppb	3.25	5000.00	90 -	110	104.1	
27	Al	1	45	5100.00	ppb	2.79	5000.00	90 -	110	102.0	
39	K	1	45	5194.00	ppb	1.43	5000.00	90 -	110	103.9	
44	Ca	2	45	5420.00	ppb	1.25	5000.00	90 -	110	108.4	
47	Ti	1	45	196.70	ppb	3.09	200.00	90 -	110	98.4	
51	V	1	45	201.50	ppb	3.17	200.00	90 -	110	100.8	
52	Cr	1	45	204.50	ppb	3.38	200.00	90 -	110	102.3	
55	Mn	1	45	203.50	ppb	2.69	200.00	90 -	110	101.8	
56	Fe	1	72	5141.00	ppb	2.74	5000.00	90 -	110	102.8	
59	Co	1	72	207.60	ppb	2.42	200.00	90 -	110	103.8	
60	Ni	1	72	202.90	ppb	2.01	200.00	90 -	110	101.5	
63	Cu	1	72	208.60	ppb	2.56	200.00	90 -	110	104.3	
66	Zn	1	72	206.60	ppb	2.37	200.00	90 -	110	103.3	
75	As	1	72	206.20	ppb	2.07	200.00	90 -	110	103.1	
78	Se	1	72	206.20	ppb	2.68	200.00	90 -	110	103.1	
88	Sr	2	115	217.70	ppb	2.16	200.00	90 -	110	108.9	
95	Mo	2	115	209.50	ppb	1.57	200.00	90 -	110	104.8	
107	Ag	2	115	209.40	ppb	2.11	200.00	90 -	110	104.7	
111	Cd	2	115	202.30	ppb	1.64	200.00	90 -	110	101.2	
118	Sn	2	115	198.00	ppb	1.44	200.00	90 -	110	99.0	
121	Sb	2	115	195.30	ppb	1.32	200.00	90 -	110	97.7	
137	Ba	2	115	195.20	ppb	1.42	200.00	90 -	110	97.6	
205	Tl	2	209	212.10	ppb	0.60	200.00	90 -	110	106.1	
208	Pb	2	209	203.70	ppb	2.11	200.00	90 -	110	101.9	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	-86652.00	1.66	36.77	-235662.1	70 -	120	ISFail
45	Sc	1	165486.64	0.45	157844.06	104.8	70 -	120	
45	Sc	2	6574466.00	1.93	5827273.50	112.8	70 -	120	
72	Ge	1	89509.84	0.83	86621.49	103.3	70 -	120	
115	In	2	6334299.00	1.68	6276207.00	100.9	70 -	120	
209	Bi	2	4137339.50	1.24	4446753.50	93.0	70 -	120	

CCV QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\049LCVL.D\049LCVL.D#

Date Acquired:	Aug 10 2016 03:50 pm	Sample Name:	**LCVL1-160810**
Acq. Method:	DHL_3Fe.M	Misc Info:	LCVLICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 10 2016 01:05 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	12.59	ppb	2.24	10.00	70 -	130	125.9	
9	Be	2	45	1.21	ppb	1.93	1.00	70 -	130	120.5	
11	B	2	45	24.99	ppb	1.26	20.00	70 -	130	125.0	
23	Na	1	45	113.70	ppb	0.51	100.00	70 -	130	113.7	
24	Mg	1	45	110.40	ppb	2.96	100.00	70 -	130	110.4	
27	Al	1	45	112.80	ppb	2.26	100.00	70 -	130	112.8	
39	K	1	45	114.80	ppb	2.42	100.00	70 -	130	114.8	
44	Ca	2	45	115.50	ppb	3.16	100.00	70 -	130	115.5	
47	Ti	1	45	5.35	ppb	13.35	5.00	70 -	130	106.9	
51	V	1	45	1.03	ppb	3.39	1.00	70 -	130	103.0	
52	Cr	1	45	5.21	ppb	3.79	5.00	70 -	130	104.2	
55	Mn	1	45	5.28	ppb	2.21	5.00	70 -	130	105.6	
56	Fe	1	72	114.70	ppb	1.09	100.00	70 -	130	114.7	
59	Co	1	72	5.25	ppb	3.47	5.00	70 -	130	104.9	
60	Ni	1	72	5.31	ppb	5.53	5.00	70 -	130	106.1	
63	Cu	1	72	5.26	ppb	3.88	5.00	70 -	130	105.2	
66	Zn	1	72	6.64	ppb	20.26	5.00	70 -	130	132.8	Fail
75	As	1	72	5.28	ppb	0.98	5.00	70 -	130	105.6	
78	Se	1	72	5.51	ppb	10.53	5.00	70 -	130	110.2	
88	Sr	2	115	5.36	ppb	2.52	5.00	70 -	130	107.2	
95	Mo	2	115	5.22	ppb	3.41	5.00	70 -	130	104.4	
107	Ag	2	115	2.08	ppb	2.68	2.00	70 -	130	104.1	
111	Cd	2	115	1.12	ppb	5.91	1.00	70 -	130	111.5	
118	Sn	2	115	5.15	ppb	3.81	5.00	70 -	130	103.1	
121	Sb	2	115	2.04	ppb	1.61	2.00	70 -	130	102.0	
137	Ba	2	115	4.91	ppb	3.48	5.00	70 -	130	98.3	
205	Tl	2	209	1.15	ppb	1.21	1.00	70 -	130	114.9	
208	Pb	2	209	1.13	ppb	0.51	1.00	70 -	130	113.2	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	-2750.00	2.55	36.77	-7479.0	70 -	120	ISFail
45	Sc	1	166725.66	1.84	157844.06	105.6	70 -	120	
45	Sc	2	6332806.00	1.91	5827273.50	108.7	70 -	120	
72	Ge	1	90575.79	1.12	86621.49	104.6	70 -	120	
115	In	2	6233634.50	1.32	6276207.00	99.3	70 -	120	
209	Bi	2	4197759.50	1.54	4446753.50	94.4	70 -	120	

CCB QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\050_CCB.D\050_CCB.D#

Date Acquired:	Aug 10 2016 03:56 pm	Sample Name:	**CCB1-160810**
Acq. Method:	DHL_3Fe.M	Misc Info:	CCB ICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 10 2016 01:05 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	MDL S	MDL Aq	Flag
7	Li	2	45	0.177	ppb	1.13	2.00	2.00	
9	Be	2	45	0.037	ppb	11.06	0.40	0.30	
11	B	2	45	3.631	ppb	3.34	10.00	10.00	
23	Na	1	45	12.710	ppb	2.10	50.00	#####	
24	Mg	1	45	2.342	ppb	13.82	50.00	#####	
27	Al	1	45	10.340	ppb	3.32	50.00	10.00	FailAq
39	K	1	45	11.940	ppb	3.59	50.00	#####	
44	Ca	2	45	32.860	ppb	4.42	50.00	#####	
47	Ti	1	45	0.152	ppb	10.83	4.00	3.00	
51	V	1	45	0.013	ppb	12.91	4.00	3.00	
52	Cr	1	45	0.073	ppb	6.24	2.00	2.00	
55	Mn	1	45	0.122	ppb	8.70	2.00	3.00	
56	Fe	1	72	3.064	ppb	10.79	50.00	30.00	
59	Co	1	72	0.043	ppb	16.11	2.00	3.00	
60	Ni	1	72	0.135	ppb	7.66	2.00	3.00	
63	Cu	1	72	0.093	ppb	8.48	2.00	2.00	
66	Zn	1	72	1.139	ppb	11.47	4.00	2.00	
75	As	1	72	0.009	ppb	5.34	2.00	2.00	
78	Se	1	72	0.095	ppb	15.56	0.60	2.00	
88	Sr	2	115	0.143	ppb	8.35	4.00	3.00	
95	Mo	2	115	0.086	ppb	15.51	2.00	2.00	
107	Ag	2	115	0.037	ppb	4.28	0.40	1.00	
111	Cd	2	115	0.054	ppb	17.39	0.40	0.30	
118	Sn	2	115	0.163	ppb	4.08	20.00	3.00	
121	Sb	2	115	0.074	ppb	17.96	2.00	0.80	
137	Ba	2	115	0.130	ppb	15.86	2.00	3.00	
205	Tl	2	209	0.128	ppb	2.33	2.00	0.50	
208	Pb	2	209	0.089	ppb	8.91	0.40	0.30	

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	RHigh	-47.78	21.45	36.77	-129.9	70 - 120	ISFail
45	Sc	1		167009.52	1.37	157844.06	105.8	70 - 120	
45	Sc	2		6290814.50	2.41	5827273.50	108.0	70 - 120	
72	Ge	1		91555.22	1.43	86621.49	105.7	70 - 120	
115	In	2		6177034.50	1.10	6276207.00	98.4	70 - 120	
209	Bi	2		4190757.50	0.64	4446753.50	94.2	70 - 120	

PB QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\051__PB.D\051__PB.D#

Date Acquired:	Aug 10 2016 04:02 pm	Sample Name:	**MB-76690**
Acq. Method:	DHL_3Fe.M	Misc Info:	MBLKICPMS_TSDOD
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	Aug 10 2016 01:05 pm	Auto Dil:	Undiluted
Instrument:	ICPMS3	Total Dil:	5.00

QC Elements

Element				Conc.		RSD(%)	MDL	RL	Flag
7	Li	2	45	0.119	ppb	4.77	2.0	8.00	
9	Be	2	45	0.014	ppb	47.95	0.4	1.20	
11	B	2	45	2.606	ppb	2.41	10.0	30.00	
23	Na	1	45	20.670	ppb	0.64	50.0	#####	
24	Mg	1	45	10.690	ppb	4.06	50.0	#####	
27	Al	1	45	5.007	ppb	9.19	50.0	#####	
39	K	1	45	25.440	ppb	1.00	50.0	#####	
44	Ca	2	45	41.360	ppb	5.44	50.0	#####	
47	Ti	1	45	0.042	ppb	45.83	4.0	10.00	
51	V	1	45	-0.030	ppb	10.26	4.0	10.00	
52	Cr	1	45	0.206	ppb	5.90	2.0	8.00	
55	Mn	1	45	0.143	ppb	14.00	2.0	8.00	
56	Fe	1	72	4.339	ppb	11.28	50.0	#####	
59	Co	1	72	0.006	ppb	20.09	2.0	8.00	
60	Ni	1	72	0.143	ppb	14.62	2.0	8.00	
63	Cu	1	72	0.138	ppb	3.20	2.0	8.00	
66	Zn	1	72	2.386	ppb	5.38	4.0	10.00	
75	As	1	72	0.017	ppb	0.99	2.0	4.00	
78	Se	1	72	0.082	ppb	18.60	0.6	2.00	
88	Sr	2	115	0.092	ppb	7.61	4.0	10.00	
95	Mo	2	115	0.049	ppb	12.64	2.0	8.00	
107	Ag	2	115	0.013	ppb	12.08	0.4	0.80	
111	Cd	2	115	0.003	ppb	7.86	0.4	1.20	
118	Sn	2	115	4.467	ppb	2.30	20.0	40.00	
121	Sb	2	115	0.038	ppb	15.93	2.0	4.00	
137	Ba	2	115	0.053	ppb	14.34	2.0	8.00	
205	Tl	2	209	0.081	ppb	6.28	2.0	4.00	
208	Pb	2	209	0.083	ppb	8.37	0.4	1.20	

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	RHig	-31.47	51.25	36.77	-85.6	70 - 120	ISFail
45	Sc	1		171408.14	0.73	157844.06	108.6	70 - 120	
45	Sc	2		6442825.50	2.04	5827273.50	110.6	70 - 120	
72	Ge	1		91171.99	1.42	86621.49	105.3	70 - 120	
115	In	2		6212227.50	1.89	6276207.00	99.0	70 - 120	
209	Bi	2		4269142.00	1.10	4446753.50	96.0	70 - 120	

LCS QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\052_LCS.D\052_LCS.D#

Date Acquired:	Aug 10 2016 04:08 pm	Sample Name:	**LCS-76690**
Acq. Method:	DHL_3Fe.M	Misc Info:	LCS ICPMS_TSDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	Aug 10 2016 01:05 pm	Auto Dil:	Undiluted
Instrument:	ICPMS3	Total Dil:	5.00

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	238.30	ppb	1.16	200.00	80 -	120	119.2	
9	Be	2	45	215.70	ppb	1.51	200.00	80 -	120	107.9	
11	B	2	45	212.80	ppb	1.34	200.00	80 -	120	106.4	
23	Na	1	45	5347.00	ppb	1.04	5000.00	80 -	120	106.9	
24	Mg	1	45	5044.00	ppb	2.31	5000.00	80 -	120	100.9	
27	Al	1	45	1006.00	ppb	3.94	1000.00	80 -	120	100.6	
39	K	1	45	5042.00	ppb	1.84	5000.00	80 -	120	100.8	
44	Ca	2	45	5210.00	ppb	2.02	5000.00	80 -	120	104.2	
47	Ti	1	45	200.90	ppb	3.31	200.00	80 -	120	100.5	
51	V	1	45	199.40	ppb	2.60	200.00	80 -	120	99.7	
52	Cr	1	45	200.50	ppb	2.87	200.00	80 -	120	100.3	
55	Mn	1	45	202.00	ppb	2.05	200.00	80 -	120	101.0	
56	Fe	1	72	1075.00	ppb	4.22	1000.00	80 -	120	107.5	
59	Co	1	72	208.90	ppb	3.12	200.00	80 -	120	104.5	
60	Ni	1	72	204.40	ppb	1.61	200.00	80 -	120	102.2	
63	Cu	1	72	207.30	ppb	2.17	200.00	80 -	120	103.7	
66	Zn	1	72	203.00	ppb	2.24	200.00	80 -	120	101.5	
75	As	1	72	198.40	ppb	2.63	200.00	80 -	120	99.2	
78	Se	1	72	193.20	ppb	3.40	200.00	80 -	120	96.6	
88	Sr	2	115	218.80	ppb	1.22	200.00	80 -	120	109.4	
95	Mo	2	115	209.20	ppb	1.62	200.00	80 -	120	104.6	
107	Ag	2	115	206.30	ppb	2.37	200.00	80 -	120	103.2	
111	Cd	2	115	197.90	ppb	2.37	200.00	80 -	120	99.0	
118	Sn	2	115	205.20	ppb	1.31	200.00	80 -	120	102.6	
121	Sb	2	115	190.30	ppb	1.54	200.00	80 -	120	95.2	
137	Ba	2	115	196.10	ppb	1.33	200.00	80 -	120	98.1	
205	Tl	2	209	213.90	ppb	1.14	200.00	80 -	120	107.0	
208	Pb	2	209	206.60	ppb	1.44	200.00	80 -	120	103.3	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	-86131.67	1.64	36.77	-234247.0	70 -	120	ISFail
45	Sc	1	172287.91	0.48	157844.06	109.2	70 -	120	
45	Sc	2	6365078.00	2.42	5827273.50	109.2	70 -	120	
72	Ge	1	90262.32	0.57	86621.49	104.2	70 -	120	
115	In	2	6101695.50	1.38	6276207.00	97.2	70 -	120	
209	Bi	2	4137535.00	0.92	4446753.50	93.0	70 -	120	

LCS QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\053_LCS.D\053_LCS.D#

Date Acquired:	Aug 10 2016 04:14 pm	Sample Name:	**LCSD-76690**
Acq. Method:	DHL_3Fe.M	Misc Info:	LCSDICPMS_TSDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	Aug 10 2016 01:05 pm	Auto Dil:	Undiluted
Instrument:	ICPMS3	Total Dil:	5.00

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	235.40	ppb	0.57	200.00	80 -	120	117.7	
9	Be	2	45	214.90	ppb	1.18	200.00	80 -	120	107.5	
11	B	2	45	211.80	ppb	1.00	200.00	80 -	120	105.9	
23	Na	1	45	5372.00	ppb	2.39	5000.00	80 -	120	107.4	
24	Mg	1	45	5104.00	ppb	1.91	5000.00	80 -	120	102.1	
27	Al	1	45	1034.00	ppb	3.47	1000.00	80 -	120	103.4	
39	K	1	45	5050.00	ppb	1.40	5000.00	80 -	120	101.0	
44	Ca	2	45	5249.00	ppb	1.72	5000.00	80 -	120	105.0	
47	Ti	1	45	203.10	ppb	4.79	200.00	80 -	120	101.6	
51	V	1	45	200.40	ppb	2.85	200.00	80 -	120	100.2	
52	Cr	1	45	201.00	ppb	2.73	200.00	80 -	120	100.5	
55	Mn	1	45	202.50	ppb	2.00	200.00	80 -	120	101.3	
56	Fe	1	72	1083.00	ppb	2.31	1000.00	80 -	120	108.3	
59	Co	1	72	208.20	ppb	2.42	200.00	80 -	120	104.1	
60	Ni	1	72	203.90	ppb	1.92	200.00	80 -	120	102.0	
63	Cu	1	72	207.30	ppb	1.74	200.00	80 -	120	103.7	
66	Zn	1	72	205.10	ppb	1.90	200.00	80 -	120	102.6	
75	As	1	72	199.70	ppb	1.50	200.00	80 -	120	99.9	
78	Se	1	72	195.60	ppb	1.60	200.00	80 -	120	97.8	
88	Sr	2	115	219.20	ppb	1.30	200.00	80 -	120	109.6	
95	Mo	2	115	209.90	ppb	1.67	200.00	80 -	120	105.0	
107	Ag	2	115	203.40	ppb	2.99	200.00	80 -	120	101.7	
111	Cd	2	115	198.30	ppb	1.39	200.00	80 -	120	99.2	
118	Sn	2	115	206.20	ppb	1.46	200.00	80 -	120	103.1	
121	Sb	2	115	191.20	ppb	1.17	200.00	80 -	120	95.6	
137	Ba	2	115	195.90	ppb	1.40	200.00	80 -	120	98.0	
205	Tl	2	209	214.00	ppb	1.33	200.00	80 -	120	107.0	
208	Pb	2	209	207.00	ppb	0.98	200.00	80 -	120	103.5	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	-81958.80	0.49	36.77	-222898.3	70 -	120	ISFail
45	Sc	1	172426.50	0.65	157844.06	109.2	70 -	120	
45	Sc	2	6187878.00	2.40	5827273.50	106.2	70 -	120	
72	Ge	1	90369.60	0.27	86621.49	104.3	70 -	120	
115	In	2	5997364.50	1.14	6276207.00	95.6	70 -	120	
209	Bi	2	4103592.80	1.06	4446753.50	92.3	70 -	120	

DT QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\056DT1.D\056DT1.D#

Date Acquired:	Aug 10 2016 04:31 pm	Sample Name:	**1607314-03A SD**
Acq. Method:	DHL_3Fe.M	Misc Info:	SD ICPMS_TSDOD1
Operator:	KL	Bench Diln:	25.00
Last Cal. Update:	Aug 10 2016 01:05 pm	Auto Diln:	Undiluted
Instrument:	ICPMS3	Total Diln:	25.00

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)	Rec(%)	Flag
7	Li	2	45	16.10	ppb	1.41	-2940.88	90 - 110	-2.7	
9	Be	2	45	0.63	ppb	9.47	2.87	90 - 110	110.3	
11	B	2	45	19.73	ppb	1.07	81.55	90 - 110	121.0	
23	Na	1	45	332.40	ppb	0.97	1626.00	90 - 110	102.2	GOOD
24	Mg	1	45	3020.00	ppb	3.59	14950.00	90 - 110	101.0	GOOD
27	Al	1	45	15730.00	ppb	3.48	77560.00	90 - 110	101.4	GOOD
39	K	1	45	3176.00	ppb	1.46	15950.00	90 - 110	99.6	GOOD
44	Ca	2	45	25240.00	ppb	1.71	122000.00	90 - 110	103.4	GOOD
47	Ti	1	45	46.32	ppb	7.35	242.40	90 - 110	95.5	GOOD
51	V	1	45	21.50	ppb	4.08	105.90	90 - 110	101.5	GOOD
52	Cr	1	45	13.47	ppb	3.22	64.67	90 - 110	104.1	GOOD
55	Mn	1	45	127.40	ppb	2.65	611.00	90 - 110	104.3	GOOD
56	Fe	1	72	14400.00	ppb	3.80	70570.00	90 - 110	102.0	GOOD
59	Co	1	72	5.33	ppb	2.75	26.20	90 - 110	101.6	GOOD
60	Ni	1	72	8.72	ppb	2.97	40.77	90 - 110	107.0	GOOD
63	Cu	1	72	5.92	ppb	2.30	27.76	90 - 110	106.7	GOOD
66	Zn	1	72	56.83	ppb	3.21	250.20	90 - 110	113.6	
75	As	1	72	5.31	ppb	4.29	25.20	90 - 110	105.3	GOOD
78	Se	1	72	2.99	ppb	5.44	13.90	90 - 110	107.6	GOOD
88	Sr	2	115	84.20	ppb	3.52	422.70	90 - 110	99.6	GOOD
95	Mo	2	115	0.70	ppb	2.68	3.38	90 - 110	103.2	GOOD
107	Ag	2	115	0.07	ppb	15.17	0.24	90 - 110	139.9	
111	Cd	2	115	0.28	ppb	16.62	1.25	90 - 110	112.6	
118	Sn	2	115	1.18	ppb	2.18	5.74	90 - 110	102.6	GOOD
121	Sb	2	115	0.40	ppb	4.70	1.88	90 - 110	106.6	GOOD
137	Ba	2	115	167.30	ppb	1.53	883.40	90 - 110	94.7	GOOD
205	Tl	2	209	0.23	ppb	7.77	0.84	90 - 110	137.7	
208	Pb	2	209	17.50	ppb	1.12	88.41	90 - 110	99.0	GOOD

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	RHig	-2940.88	9.28	36.77	-7998.1	70 -	120	ISFail
45	Sc	1		169045.33	0.81	157844.06	107.1	70 -	120	
45	Sc	2		6002183.50	1.10	5827273.50	103.0	70 -	120	
72	Ge	1		90463.91	1.02	86621.49	104.4	70 -	120	
115	In	2		6110808.50	1.03	6276207.00	97.4	70 -	120	
209	Bi	2		4164325.30	1.41	4446753.50	93.6	70 -	120	

PDS QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\067_PDS.D\067_PDS.D#

Date Acquired:	Aug 10 2016 05:55 pm	Sample Name:	**1607314-03A PDS**
Acq. Method:	DHL_3Fe.M	Misc Info:	PDS ICPMS_TSDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	Aug 10 2016 01:05 pm	Auto Diln:	Undiluted
Instrument:	ICPMS3	Total Diln:	5.00

QC Elements

Element				Conc.		RSD(%)	Ref Conc	Spike	Range	Rec(%)	Flag
7	Li	2	45	332.70	ppb	2.69	-58463.21	200	75-125	######	Fail
9	Be	2	45	213.70	ppb	2.61	2.87	200	75-125	105.4	
11	B	2	45	281.20	ppb	2.97	81.55	200	75-125	99.8	
23	Na	1	45	7346.00	ppb	1.71	1626.00	5000	75-125	114.4	
24	Mg	1	45	21120.00	ppb	2.68	14950.00	5000	75-125	123.4	
27	Al	1	45	83780.00	ppb	3.29	77560.00	5000	75-125	124.4	
39	K	1	45	21520.00	ppb	1.15	15950.00	5000	75-125	111.4	
44	Ca	2	45	133300.00	ppb	3.00	122000.00	5000	75-125	226.0	Fail
47	Ti	1	45	448.50	ppb	3.98	242.40	200	75-125	103.1	
51	V	1	45	318.00	ppb	2.59	105.90	200	75-125	106.1	
52	Cr	1	45	277.50	ppb	2.66	64.67	200	75-125	106.4	
55	Mn	1	45	829.60	ppb	1.97	611.00	200	75-125	109.3	
56	Fe	1	72	78780.00	ppb	3.01	70570.00	5000	75-125	164.2	Fail
59	Co	1	72	233.10	ppb	1.86	26.20	200	75-125	103.4	
60	Ni	1	72	239.60	ppb	1.23	40.77	200	75-125	99.4	
63	Cu	1	72	226.50	ppb	1.66	27.76	200	75-125	99.4	
66	Zn	1	72	442.50	ppb	2.22	250.20	200	75-125	96.2	
75	As	1	72	218.90	ppb	2.27	25.20	200	75-125	96.8	
78	Se	1	72	189.80	ppb	3.02	13.90	200	75-125	88.0	
88	Sr	2	115	677.70	ppb	1.87	422.70	200	75-125	127.5	Fail
95	Mo	2	115	211.20	ppb	2.35	3.38	200	75-125	103.9	
107	Ag	2	115	190.80	ppb	1.79	0.24	200	75-125	95.3	
111	Cd	2	115	188.30	ppb	1.30	1.25	200	75-125	93.5	
118	Sn	2	115	204.80	ppb	1.54	5.74	200	75-125	99.5	
121	Sb	2	115	193.20	ppb	1.74	1.88	200	75-125	95.7	
137	Ba	2	115	1119.00	ppb	1.49	883.40	200	75-125	117.8	
205	Tl	2	209	208.90	ppb	1.31	0.84	200	75-125	104.0	
208	Pb	2	209	295.40	ppb	0.92	88.41	200	75-125	103.5	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-58463.21	2.99	36.77	-158998.8	70 - 120	ISFail
45	Sc	1	155074.30	0.41	157844.06	98.2	70 - 120	
45	Sc	2	6351654.50	2.66	5827273.50	109.0	70 - 120	
72	Ge	1	81892.20	0.16	86621.49	94.5	70 - 120	
115	In	2	5728518.00	1.19	6276207.00	91.3	70 - 120	
209	Bi	2	3743962.00	0.35	4446753.50	84.2	70 - 120	

MS/MSD QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\068_MS.D\068_MS.D#

Date Acquired:	Aug 10 2016 06:00 pm	Sample Name:	**1607314-03A MS**
Acq. Method:	DHL_3Fe.M	Misc Info:	MS ICPMS_TSDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	Aug 10 2016 01:05 pm	Auto Diln:	Undiluted
Instrument:	ICPMS3	Total Diln:	5.00

QC Elements

Element				Conc.		RSD(%)	Ref Conc	Spike	Range	Rec(%)	Flag
7	Li	2	45	334.70	ppb	1.83	########	200	80-120	######	Fail
9	Be	2	45	221.60	ppb	1.89	2.87	200	80-120	109.4	
11	B	2	45	286.70	ppb	1.43	81.55	200	80-120	102.6	
23	Na	1	45	7352.00	ppb	1.97	1626.00	5000	80-120	114.5	
24	Mg	1	45	20220.00	ppb	2.73	14950.00	5000	80-120	105.4	
27	Al	1	45	79020.00	ppb	3.42	77560.00	1000	80-120	146.0	Fail
39	K	1	45	20960.00	ppb	2.78	15950.00	5000	80-120	100.2	
44	Ca	2	45	117400.00	ppb	2.54	########	5000	80-120	-92.0	Fail
47	Ti	1	45	473.40	ppb	1.40	242.40	200	80-120	115.5	
51	V	1	45	319.50	ppb	3.20	105.90	200	80-120	106.8	
52	Cr	1	45	272.00	ppb	3.51	64.67	200	80-120	103.7	
55	Mn	1	45	756.30	ppb	2.83	611.00	200	80-120	72.7	Fail
56	Fe	1	72	68180.00	ppb	2.72	70570.00	1000	80-120	-239.0	Fail
59	Co	1	72	240.00	ppb	2.61	26.20	200	80-120	106.9	
60	Ni	1	72	244.50	ppb	2.38	40.77	200	80-120	101.9	
63	Cu	1	72	229.60	ppb	2.34	27.76	200	80-120	100.9	
66	Zn	1	72	424.50	ppb	3.30	250.20	200	80-120	87.2	
75	As	1	72	224.80	ppb	3.03	25.20	200	80-120	99.8	
78	Se	1	72	201.80	ppb	1.40	13.90	200	80-120	94.0	
88	Sr	2	115	638.80	ppb	2.32	422.70	200	80-120	108.0	
95	Mo	2	115	209.30	ppb	1.89	3.38	200	80-120	103.0	
107	Ag	2	115	198.60	ppb	1.81	0.24	200	80-120	99.2	
111	Cd	2	115	202.80	ppb	1.55	1.25	200	80-120	100.8	
118	Sn	2	115	215.40	ppb	1.49	5.74	200	80-120	104.8	
121	Sb	2	115	62.33	ppb	1.63	1.88	200	80-120	30.2	Fail
137	Ba	2	115	971.40	ppb	1.75	883.40	200	80-120	44.0	Fail
205	Tl	2	209	228.30	ppb	0.69	0.84	200	80-120	113.7	
208	Pb	2	209	298.10	ppb	0.95	88.41	200	80-120	104.8	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-96826.02	1.86	36.77	########	70 - 120	ISFail
45	Sc	1	152598.89	0.79	157844.06	96.7	70 - 120	
45	Sc	2	6171120.00	2.11	5827273.50	105.9	70 - 120	
72	Ge	1	80772.27	0.44	86621.49	93.2	70 - 120	
115	In	2	5568273.50	1.39	6276207.00	88.7	70 - 120	
209	Bi	2	3694395.30	0.96	4446753.50	83.1	70 - 120	

MS/MSD QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\069_MS.D\069_MS.D#

Date Acquired:	Aug 10 2016 06:06 pm	Sample Name:	**1607314-03A MSD**
Acq. Method:	DHL_3Fe.M	Misc Info:	MSD ICPMS_TSDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	Aug 10 2016 01:05 pm	Auto Diln:	Undiluted
Instrument:	ICPMS3	Total Diln:	5.00

QC Elements

Element				Conc.		RSD(%)	Ref Conc	Spike	Range	Rec(%)	Flag
7	Li	2	45	333.70	ppb	1.03	########	200	80-120	######	Fail
9	Be	2	45	219.70	ppb	1.07	2.87	200	80-120	108.4	
11	B	2	45	286.40	ppb	1.57	81.55	200	80-120	102.4	
23	Na	1	45	7302.00	ppb	1.83	1626.00	5000	80-120	113.5	
24	Mg	1	45	20900.00	ppb	3.48	14950.00	5000	80-120	119.0	
27	Al	1	45	82070.00	ppb	4.53	77560.00	1000	80-120	451.0	Fail
39	K	1	45	21230.00	ppb	1.98	15950.00	5000	80-120	105.6	
44	Ca	2	45	127700.00	ppb	1.38	########	5000	80-120	114.0	
47	Ti	1	45	486.40	ppb	4.47	242.40	200	80-120	122.0	Fail
51	V	1	45	323.60	ppb	3.24	105.90	200	80-120	108.9	
52	Cr	1	45	276.20	ppb	4.03	64.67	200	80-120	105.8	
55	Mn	1	45	840.60	ppb	3.42	611.00	200	80-120	114.8	
56	Fe	1	72	71050.00	ppb	3.82	70570.00	1000	80-120	48.0	Fail
59	Co	1	72	240.30	ppb	3.35	26.20	200	80-120	107.0	
60	Ni	1	72	246.60	ppb	3.44	40.77	200	80-120	102.9	
63	Cu	1	72	232.80	ppb	2.98	27.76	200	80-120	102.5	
66	Zn	1	72	434.60	ppb	3.55	250.20	200	80-120	92.2	
75	As	1	72	226.80	ppb	2.43	25.20	200	80-120	100.8	
78	Se	1	72	200.40	ppb	2.41	13.90	200	80-120	93.3	
88	Sr	2	115	676.80	ppb	1.52	422.70	200	80-120	127.0	Fail
95	Mo	2	115	212.20	ppb	1.83	3.38	200	80-120	104.4	
107	Ag	2	115	200.20	ppb	1.56	0.24	200	80-120	100.0	
111	Cd	2	115	202.70	ppb	1.79	1.25	200	80-120	100.7	
118	Sn	2	115	217.90	ppb	1.50	5.74	200	80-120	106.1	
121	Sb	2	115	63.82	ppb	1.20	1.88	200	80-120	31.0	Fail
137	Ba	2	115	1006.00	ppb	1.73	883.40	200	80-120	61.3	Fail
205	Tl	2	209	227.90	ppb	1.21	0.84	200	80-120	113.5	
208	Pb	2	209	313.30	ppb	1.06	88.41	200	80-120	112.4	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-94850.23	0.37	36.77	########	70 - 120	ISFail
45	Sc	1	152052.97	0.81	157844.06	96.3	70 - 120	
45	Sc	2	6049218.50	1.92	5827273.50	103.8	70 - 120	
72	Ge	1	79875.96	0.85	86621.49	92.2	70 - 120	
115	In	2	5438859.50	1.06	6276207.00	86.7	70 - 120	
209	Bi	2	3646787.50	1.68	4446753.50	82.0	70 - 120	

CCV QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\070CCV1.D\070CCV1.D#

Date Acquired:	Aug 10 2016 06:12 pm	Sample Name:	**CCV2-160810**
Acq. Method:	DHL_3Fe.M	Misc Info:	CCV ICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 10 2016 01:05 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	256.20	ppb	0.73	200.00	90 -	110	128.1	Fail
9	Be	2	45	233.50	ppb	1.05	200.00	90 -	110	116.8	Fail
11	B	2	45	222.50	ppb	0.95	200.00	90 -	110	111.3	Fail
23	Na	1	45	6002.00	ppb	2.01	5000.00	90 -	110	120.0	Fail
24	Mg	1	45	5605.00	ppb	2.64	5000.00	90 -	110	112.1	Fail
27	Al	1	45	5430.00	ppb	4.39	5000.00	90 -	110	108.6	
39	K	1	45	5422.00	ppb	2.27	5000.00	90 -	110	108.4	
44	Ca	2	45	5742.00	ppb	2.02	5000.00	90 -	110	114.8	Fail
47	Ti	1	45	213.30	ppb	3.87	200.00	90 -	110	106.7	
51	V	1	45	214.50	ppb	4.12	200.00	90 -	110	107.3	
52	Cr	1	45	217.40	ppb	3.56	200.00	90 -	110	108.7	
55	Mn	1	45	214.90	ppb	3.45	200.00	90 -	110	107.5	
56	Fe	1	72	5449.00	ppb	4.38	5000.00	90 -	110	109.0	
59	Co	1	72	219.60	ppb	3.07	200.00	90 -	110	109.8	
60	Ni	1	72	216.30	ppb	2.43	200.00	90 -	110	108.2	
63	Cu	1	72	220.60	ppb	3.01	200.00	90 -	110	110.3	Fail
66	Zn	1	72	218.70	ppb	2.70	200.00	90 -	110	109.4	
75	As	1	72	215.50	ppb	2.39	200.00	90 -	110	107.8	
78	Se	1	72	213.40	ppb	3.67	200.00	90 -	110	106.7	
88	Sr	2	115	237.80	ppb	1.72	200.00	90 -	110	118.9	Fail
95	Mo	2	115	226.90	ppb	1.52	200.00	90 -	110	113.5	Fail
107	Ag	2	115	215.90	ppb	1.70	200.00	90 -	110	108.0	
111	Cd	2	115	214.10	ppb	1.78	200.00	90 -	110	107.1	
118	Sn	2	115	209.90	ppb	1.04	200.00	90 -	110	105.0	
121	Sb	2	115	205.60	ppb	1.23	200.00	90 -	110	102.8	
137	Ba	2	115	206.00	ppb	0.81	200.00	90 -	110	103.0	
205	Tl	2	209	220.30	ppb	0.62	200.00	90 -	110	110.2	Fail
208	Pb	2	209	208.10	ppb	0.69	200.00	90 -	110	104.1	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	-83207.28	1.06	36.77	-226293.7	70 -	120		ISFail
45	Sc	1	149053.86	0.63	157844.06	94.4	70 -	120		
45	Sc	2	5934816.50	1.02	5827273.50	101.8	70 -	120		
72	Ge	1	80521.56	0.83	86621.49	93.0	70 -	120		
115	In	2	5231951.00	1.48	6276207.00	83.4	70 -	120		
209	Bi	2	3706362.00	0.81	4446753.50	83.3	70 -	120		

CCV QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\072LCVL.D\072LCVL.D#

Date Acquired:	Aug 10 2016 06:24 pm	Sample Name:	**LCVL2-160810**
Acq. Method:	DHL_3Fe.M	Misc Info:	LCVLICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 10 2016 01:05 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	13.08	ppb	0.91	10.00	70 -	130	130.8	Fail
9	Be	2	45	1.22	ppb	2.65	1.00	70 -	130	121.8	
11	B	2	45	24.68	ppb	1.52	20.00	70 -	130	123.4	
23	Na	1	45	114.80	ppb	1.38	100.00	70 -	130	114.8	
24	Mg	1	45	116.10	ppb	3.78	100.00	70 -	130	116.1	
27	Al	1	45	120.20	ppb	0.24	100.00	70 -	130	120.2	
39	K	1	45	110.90	ppb	4.98	100.00	70 -	130	110.9	
44	Ca	2	45	118.60	ppb	7.04	100.00	70 -	130	118.6	
47	Ti	1	45	4.68	ppb	11.30	5.00	70 -	130	93.6	
51	V	1	45	1.10	ppb	3.57	1.00	70 -	130	110.4	
52	Cr	1	45	5.64	ppb	2.74	5.00	70 -	130	112.8	
55	Mn	1	45	5.38	ppb	3.84	5.00	70 -	130	107.5	
56	Fe	1	72	121.30	ppb	2.35	100.00	70 -	130	121.3	
59	Co	1	72	5.48	ppb	2.86	5.00	70 -	130	109.6	
60	Ni	1	72	5.61	ppb	4.67	5.00	70 -	130	112.2	
63	Cu	1	72	5.55	ppb	1.17	5.00	70 -	130	111.0	
66	Zn	1	72	5.43	ppb	7.30	5.00	70 -	130	108.6	
75	As	1	72	5.40	ppb	3.59	5.00	70 -	130	108.0	
78	Se	1	72	5.86	ppb	9.38	5.00	70 -	130	117.3	
88	Sr	2	115	5.84	ppb	2.20	5.00	70 -	130	116.8	
95	Mo	2	115	5.75	ppb	4.26	5.00	70 -	130	115.0	
107	Ag	2	115	2.24	ppb	1.73	2.00	70 -	130	112.0	
111	Cd	2	115	1.11	ppb	9.36	1.00	70 -	130	110.7	
118	Sn	2	115	5.35	ppb	2.63	5.00	70 -	130	106.9	
121	Sb	2	115	2.16	ppb	0.66	2.00	70 -	130	108.0	
137	Ba	2	115	5.21	ppb	2.78	5.00	70 -	130	104.2	
205	Tl	2	209	1.20	ppb	1.47	1.00	70 -	130	119.8	
208	Pb	2	209	1.16	ppb	1.50	1.00	70 -	130	116.1	

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	RHigh	-2574.01	5.30	36.77	-7000.4	70 -	120	ISFail
45	Sc	1		147271.14	0.49	157844.06	93.3	70 -	120	
45	Sc	2		5772612.00	2.91	5827273.50	99.1	70 -	120	
72	Ge	1		81263.09	0.63	86621.49	93.8	70 -	120	
115	In	2		5218325.50	1.75	6276207.00	83.1	70 -	120	
209	Bi	2		3771712.50	1.42	4446753.50	84.8	70 -	120	

CCB QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\073_CCB.D\073_CCB.D#

Date Acquired:	Aug 10 2016 06:30 pm	Sample Name:	**CCB2-160810**
Acq. Method:	DHL_3Fe.M	Misc Info:	CCB ICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 10 2016 01:05 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	MDL S	MDL Aq	Flag
7	Li	2	45	0.201	ppb	0.44	2.00	2.00	
9	Be	2	45	0.047	ppb	6.20	0.40	0.30	
11	B	2	45	3.098	ppb	3.39	10.00	10.00	
23	Na	1	45	7.005	ppb	1.29	50.00	#####	
24	Mg	1	45	2.226	ppb	10.59	50.00	#####	
27	Al	1	45	11.450	ppb	11.39	50.00	10.00	FailAq
39	K	1	45	7.467	ppb	2.98	50.00	#####	
44	Ca	2	45	35.240	ppb	7.52	50.00	#####	
47	Ti	1	45	0.028	ppb	21.65	4.00	3.00	
51	V	1	45	0.014	ppb	7.95	4.00	3.00	
52	Cr	1	45	0.048	ppb	12.28	2.00	2.00	
55	Mn	1	45	0.134	ppb	11.84	2.00	3.00	
56	Fe	1	72	3.963	ppb	20.65	50.00	30.00	
59	Co	1	72	0.039	ppb	28.81	2.00	3.00	
60	Ni	1	72	0.135	ppb	4.45	2.00	3.00	
63	Cu	1	72	0.095	ppb	17.19	2.00	2.00	
66	Zn	1	72	1.372	ppb	13.87	4.00	2.00	
75	As	1	72	-0.071	ppb	3.17	2.00	2.00	
78	Se	1	72	0.149	ppb	13.73	0.60	2.00	
88	Sr	2	115	0.194	ppb	6.54	4.00	3.00	
95	Mo	2	115	0.086	ppb	9.86	2.00	2.00	
107	Ag	2	115	0.040	ppb	17.61	0.40	1.00	
111	Cd	2	115	0.036	ppb	32.41	0.40	0.30	
118	Sn	2	115	0.122	ppb	6.57	20.00	3.00	
121	Sb	2	115	0.063	ppb	6.69	2.00	0.80	
137	Ba	2	115	0.153	ppb	7.23	2.00	3.00	
205	Tl	2	209	0.138	ppb	12.42	2.00	0.50	
208	Pb	2	209	0.082	ppb	3.81	0.40	0.30	

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	RHigh	-55.23	74.93	36.77	-150.2	70 - 120	ISFail
45	Sc	1		148403.08	1.55	157844.06	94.0	70 - 120	
45	Sc	2		5709613.50	1.58	5827273.50	98.0	70 - 120	
72	Ge	1		81008.06	1.19	86621.49	93.5	70 - 120	
115	In	2		5213931.00	1.47	6276207.00	83.1	70 - 120	
209	Bi	2		3796520.80	0.85	4446753.50	85.4	70 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\077SMPL.D\077SMPL.D#

Date Acquired:	Aug 10 2016 06:54 pm	Sample Name:	**1607317-01A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD1
Operator:	KL	Bench Diln:	5
Last Cal. Update:	Aug 10 2016 01:05 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	67.680	ppb	#REF!	2.46	2000.00	>RL
9	Be	2	45	2.771	ppb	#REF!	3.42	2000.00	>RL
11	B	2	45	63.910	ppb	#REF!	2.27	2000.00	>RL
23	Na	1	45	4142.000	ppb	#REF!	1.70	25000.00	>RL
24	Mg	1	45	14110.000	ppb	#REF!	2.77	25000.00	>RL
27	Al	1	45	73470.000	ppb	#REF!	3.30	10000.00	OUTCAL
39	K	1	45	16470.000	ppb	#REF!	1.85	25000.00	>RL
44	Ca	2	45	55550.000	ppb	#REF!	1.58	25000.00	OUTCAL
47	Ti	1	45	265.000	ppb	#REF!	3.88	2000.00	>RL
51	V	1	45	96.070	ppb	#REF!	3.53	2000.00	>RL
52	Cr	1	45	58.380	ppb	#REF!	2.99	2000.00	>RL
55	Mn	1	45	661.500	ppb	#REF!	2.49	2000.00	>RL
56	Fe	1	72	62410.000	ppb	#REF!	3.33	10000.00	OUTCAL
59	Co	1	72	23.530	ppb	#REF!	2.61	2000.00	>RL
60	Ni	1	72	38.290	ppb	#REF!	3.38	2000.00	>RL
63	Cu	1	72	27.900	ppb	#REF!	2.44	2000.00	>RL
66	Zn	1	72	237.500	ppb	#REF!	2.79	2000.00	>RL
75	As	1	72	33.120	ppb	#REF!	2.79	2000.00	>RL
78	Se	1	72	14.060	ppb	#REF!	5.52	2000.00	>RL
88	Sr	2	115	341.600	ppb	#REF!	1.98	2000.00	>RL
95	Mo	2	115	1.772	ppb	#REF!	2.61	2000.00	ND
107	Ag	2	115	0.279	ppb	#REF!	5.23	500.00	ND
111	Cd	2	115	1.373	ppb	#REF!	1.73	2000.00	>RL
118	Sn	2	115	5.974	ppb	#REF!	1.45	2000.00	ND
121	Sb	2	115	2.955	ppb	#REF!	1.85	500.00	J
137	Ba	2	115	433.700	ppb	#REF!	1.61	2000.00	>RL
205	Tl	2	209	0.649	ppb	#REF!	6.18	2000.00	ND
208	Pb	2	209	179.500	ppb	#REF!	0.88	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-10871.02	3.07	36.77	-29565.2	70 - 120	ISFail
45	Sc	1	143387.80	0.58	157844.06	90.8	70 - 120	
45	Sc	2	5981069.50	2.43	5827273.50	102.6	70 - 120	
72	Ge	1	77466.91	0.62	86621.49	89.4	70 - 120	
115	In	2	5441278.00	1.54	6276207.00	86.7	70 - 120	
209	Bi	2	3659775.00	1.33	4446753.50	82.3	70 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\078SMPL.D\078SMPL.D#

Date Acquired:	Aug 10 2016 06:59 pm	Sample Name:	**1607317-02A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD1
Operator:	KL	Bench Diln:	5
Last Cal. Update:	Aug 10 2016 01:05 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	60.810	ppb	#REF!	2.74	2000.00	>RL
9	Be	2	45	2.669	ppb	#REF!	5.58	2000.00	>RL
11	B	2	45	46.540	ppb	#REF!	1.80	2000.00	>RL
23	Na	1	45	6313.000	ppb	#REF!	2.23	25000.00	>RL
24	Mg	1	45	13490.000	ppb	#REF!	3.19	25000.00	>RL
27	Al	1	45	77510.000	ppb	#REF!	3.42	10000.00	OUTCAL
39	K	1	45	16410.000	ppb	#REF!	1.64	25000.00	>RL
44	Ca	2	45	33700.000	ppb	#REF!	3.31	25000.00	OUTCAL
47	Ti	1	45	280.500	ppb	#REF!	3.45	2000.00	>RL
51	V	1	45	96.560	ppb	#REF!	3.20	2000.00	>RL
52	Cr	1	45	58.850	ppb	#REF!	2.78	2000.00	>RL
55	Mn	1	45	604.900	ppb	#REF!	2.90	2000.00	>RL
56	Fe	1	72	60630.000	ppb	#REF!	3.22	10000.00	OUTCAL
59	Co	1	72	21.140	ppb	#REF!	3.00	2000.00	>RL
60	Ni	1	72	36.860	ppb	#REF!	2.14	2000.00	>RL
63	Cu	1	72	27.770	ppb	#REF!	1.96	2000.00	>RL
66	Zn	1	72	178.500	ppb	#REF!	2.35	2000.00	>RL
75	As	1	72	20.560	ppb	#REF!	3.17	2000.00	>RL
78	Se	1	72	13.020	ppb	#REF!	6.21	2000.00	>RL
88	Sr	2	115	249.400	ppb	#REF!	1.99	2000.00	>RL
95	Mo	2	115	1.101	ppb	#REF!	4.40	2000.00	ND
107	Ag	2	115	0.195	ppb	#REF!	3.57	500.00	ND
111	Cd	2	115	1.289	ppb	#REF!	2.32	2000.00	>RL
118	Sn	2	115	6.049	ppb	#REF!	1.92	2000.00	ND
121	Sb	2	115	0.795	ppb	#REF!	2.66	500.00	ND
137	Ba	2	115	331.100	ppb	#REF!	1.54	2000.00	>RL
205	Tl	2	209	0.647	ppb	#REF!	2.22	2000.00	ND
208	Pb	2	209	41.250	ppb	#REF!	1.18	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-9881.80	3.84	36.77	-26874.9	70 - 120	ISFail
45	Sc	1	144588.97	0.42	157844.06	91.6	70 - 120	
45	Sc	2	5798395.50	2.76	5827273.50	99.5	70 - 120	
72	Ge	1	77781.57	0.44	86621.49	89.8	70 - 120	
115	In	2	5262908.00	1.18	6276207.00	83.9	70 - 120	
209	Bi	2	3583755.00	1.19	4446753.50	80.6	70 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\080SMPL.D\080SMPL.D#

Date Acquired:	Aug 10 2016 07:11 pm	Sample Name:	**1607317-03A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD1
Operator:	KL	Bench Diln:	5
Last Cal. Update:	Aug 10 2016 01:05 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	60.130	ppb	#REF!	2.47	2000.00	>RL
9	Be	2	45	2.393	ppb	#REF!	4.63	2000.00	>RL
11	B	2	45	50.370	ppb	#REF!	2.79	2000.00	>RL
23	Na	1	45	7597.000	ppb	#REF!	2.54	25000.00	>RL
24	Mg	1	45	13900.000	ppb	#REF!	2.47	25000.00	>RL
27	Al	1	45	68280.000	ppb	#REF!	2.58	10000.00	OUTCAL
39	K	1	45	11720.000	ppb	#REF!	1.57	25000.00	>RL
44	Ca	2	45	106200.000	ppb	#REF!	2.55	25000.00	OUTCAL
47	Ti	1	45	272.500	ppb	#REF!	3.44	2000.00	>RL
51	V	1	45	101.100	ppb	#REF!	2.96	2000.00	>RL
52	Cr	1	45	64.740	ppb	#REF!	2.66	2000.00	>RL
55	Mn	1	45	574.600	ppb	#REF!	2.72	2000.00	>RL
56	Fe	1	72	60030.000	ppb	#REF!	2.76	10000.00	OUTCAL
59	Co	1	72	20.020	ppb	#REF!	2.02	2000.00	>RL
60	Ni	1	72	40.400	ppb	#REF!	1.83	2000.00	>RL
63	Cu	1	72	23.130	ppb	#REF!	1.41	2000.00	>RL
66	Zn	1	72	181.300	ppb	#REF!	2.57	2000.00	>RL
75	As	1	72	24.990	ppb	#REF!	2.14	2000.00	>RL
78	Se	1	72	12.410	ppb	#REF!	4.82	2000.00	>RL
88	Sr	2	115	467.500	ppb	#REF!	2.48	2000.00	>RL
95	Mo	2	115	2.268	ppb	#REF!	1.75	2000.00	J
107	Ag	2	115	0.192	ppb	#REF!	3.63	500.00	ND
111	Cd	2	115	1.197	ppb	#REF!	14.39	2000.00	J
118	Sn	2	115	5.834	ppb	#REF!	2.24	2000.00	ND
121	Sb	2	115	0.797	ppb	#REF!	4.39	500.00	ND
137	Ba	2	115	486.100	ppb	#REF!	1.79	2000.00	>RL
205	Tl	2	209	0.593	ppb	#REF!	2.58	2000.00	ND
208	Pb	2	209	48.020	ppb	#REF!	1.42	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-9808.62	1.60	36.77	-26675.9	70 - 120	ISFail
45	Sc	1	150228.42	0.27	157844.06	95.2	70 - 120	
45	Sc	2	5784218.50	2.71	5827273.50	99.3	70 - 120	
72	Ge	1	79342.16	0.26	86621.49	91.6	70 - 120	
115	In	2	5398749.50	1.68	6276207.00	86.0	70 - 120	
209	Bi	2	3620458.30	1.30	4446753.50	81.4	70 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\081SMPL.D\081SMPL.D#

Date Acquired:	Aug 10 2016 07:17 pm	Sample Name:	**1607317-04A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD1
Operator:	KL	Bench Diln:	5
Last Cal. Update:	Aug 10 2016 01:05 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	62.180	ppb	#REF!	1.64	2000.00	>RL
9	Be	2	45	1.917	ppb	#REF!	4.94	2000.00	>RL
11	B	2	45	56.690	ppb	#REF!	1.32	2000.00	>RL
23	Na	1	45	9424.000	ppb	#REF!	2.37	25000.00	>RL
24	Mg	1	45	13900.000	ppb	#REF!	3.79	25000.00	>RL
27	Al	1	45	58740.000	ppb	#REF!	4.23	10000.00	OUTCAL
39	K	1	45	9109.000	ppb	#REF!	2.25	25000.00	>RL
44	Ca	2	45	215600.000	ppb	#REF!	2.25	25000.00	OUTCAL
47	Ti	1	45	345.400	ppb	#REF!	4.63	2000.00	>RL
51	V	1	45	92.210	ppb	#REF!	3.66	2000.00	>RL
52	Cr	1	45	71.500	ppb	#REF!	4.48	2000.00	>RL
55	Mn	1	45	405.400	ppb	#REF!	3.07	2000.00	>RL
56	Fe	1	72	46070.000	ppb	#REF!	3.31	10000.00	OUTCAL
59	Co	1	72	16.580	ppb	#REF!	3.45	2000.00	>RL
60	Ni	1	72	43.290	ppb	#REF!	3.47	2000.00	>RL
63	Cu	1	72	13.250	ppb	#REF!	2.97	2000.00	>RL
66	Zn	1	72	111.100	ppb	#REF!	1.58	2000.00	>RL
75	As	1	72	15.930	ppb	#REF!	2.43	2000.00	>RL
78	Se	1	72	10.070	ppb	#REF!	4.93	2000.00	>RL
88	Sr	2	115	644.300	ppb	#REF!	1.06	2000.00	>RL
95	Mo	2	115	2.879	ppb	#REF!	3.65	2000.00	J
107	Ag	2	115	0.110	ppb	#REF!	10.52	500.00	ND
111	Cd	2	115	0.954	ppb	#REF!	8.26	2000.00	J
118	Sn	2	115	5.542	ppb	#REF!	0.92	2000.00	ND
121	Sb	2	115	0.206	ppb	#REF!	17.49	500.00	ND
137	Ba	2	115	543.600	ppb	#REF!	1.45	2000.00	>RL
205	Tl	2	209	0.497	ppb	#REF!	3.61	2000.00	ND
208	Pb	2	209	21.060	ppb	#REF!	0.81	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)		Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-9235.68	5.05	RHigh	36.77	-25117.7	70 - 120	ISFail
45	Sc	1	137509.58	0.41		157844.06	87.1	70 - 120	
45	Sc	2	5334057.50	2.06		5827273.50	91.5	70 - 120	
72	Ge	1	71881.40	0.50		86621.49	83.0	70 - 120	
115	In	2	5029776.00	1.14		6276207.00	80.1	70 - 120	
209	Bi	2	3370208.80	0.83		4446753.50	75.8	70 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\082SMPL.D\082SMPL.D#

Date Acquired:	Aug 10 2016 07:23 pm	Sample Name:	**1607317-05A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD1
Operator:	KL	Bench Diln:	5
Last Cal. Update:	Aug 10 2016 01:05 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	54.930	ppb	#REF!	1.94	2000.00	>RL
9	Be	2	45	2.329	ppb	#REF!	2.41	2000.00	>RL
11	B	2	45	53.120	ppb	#REF!	2.08	2000.00	>RL
23	Na	1	45	3447.000	ppb	#REF!	3.93	25000.00	>RL
24	Mg	1	45	12270.000	ppb	#REF!	3.35	25000.00	>RL
27	Al	1	45	64260.000	ppb	#REF!	4.93	10000.00	OUTCAL
39	K	1	45	13590.000	ppb	#REF!	2.40	25000.00	>RL
44	Ca	2	45	44210.000	ppb	#REF!	1.50	25000.00	OUTCAL
47	Ti	1	45	218.800	ppb	#REF!	5.80	2000.00	>RL
51	V	1	45	82.110	ppb	#REF!	3.39	2000.00	>RL
52	Cr	1	45	49.390	ppb	#REF!	4.41	2000.00	>RL
55	Mn	1	45	654.000	ppb	#REF!	3.48	2000.00	>RL
56	Fe	1	72	54890.000	ppb	#REF!	4.10	10000.00	OUTCAL
59	Co	1	72	21.750	ppb	#REF!	3.37	2000.00	>RL
60	Ni	1	72	33.760	ppb	#REF!	3.26	2000.00	>RL
63	Cu	1	72	26.270	ppb	#REF!	3.02	2000.00	>RL
66	Zn	1	72	223.500	ppb	#REF!	3.80	2000.00	>RL
75	As	1	72	32.960	ppb	#REF!	2.99	2000.00	>RL
78	Se	1	72	12.180	ppb	#REF!	4.83	2000.00	>RL
88	Sr	2	115	280.100	ppb	#REF!	1.90	2000.00	>RL
95	Mo	2	115	1.470	ppb	#REF!	2.68	2000.00	ND
107	Ag	2	115	0.256	ppb	#REF!	8.81	500.00	ND
111	Cd	2	115	1.146	ppb	#REF!	1.27	2000.00	J
118	Sn	2	115	6.091	ppb	#REF!	3.40	2000.00	ND
121	Sb	2	115	2.589	ppb	#REF!	3.55	500.00	J
137	Ba	2	115	408.800	ppb	#REF!	1.10	2000.00	>RL
205	Tl	2	209	0.547	ppb	#REF!	7.11	2000.00	ND
208	Pb	2	209	115.900	ppb	#REF!	1.18	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-8280.55	2.79	36.77	-22520.1	70 - 120	ISFail
45	Sc	1	139097.58	1.78	157844.06	88.1	70 - 120	
45	Sc	2	5392868.50	1.51	5827273.50	92.5	70 - 120	
72	Ge	1	74170.56	0.74	86621.49	85.6	70 - 120	
115	In	2	5040077.00	1.53	6276207.00	80.3	70 - 120	
209	Bi	2	3439343.00	0.80	4446753.50	77.3	70 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\083SMPL.D\083SMPL.D#

Date Acquired:	Aug 10 2016 07:29 pm	Sample Name:	**1607317-06A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD1
Operator:	KL	Bench Diln:	5
Last Cal. Update:	Aug 10 2016 01:05 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	58.590	ppb	#REF!	1.13	2000.00	>RL
9	Be	2	45	2.657	ppb	#REF!	3.41	2000.00	>RL
11	B	2	45	45.460	ppb	#REF!	1.44	2000.00	>RL
23	Na	1	45	6334.000	ppb	#REF!	2.62	25000.00	>RL
24	Mg	1	45	13960.000	ppb	#REF!	3.51	25000.00	>RL
27	Al	1	45	82060.000	ppb	#REF!	4.18	10000.00	OUTCAL
39	K	1	45	17840.000	ppb	#REF!	2.91	25000.00	>RL
44	Ca	2	45	26400.000	ppb	#REF!	2.08	25000.00	OUTCAL
47	Ti	1	45	291.600	ppb	#REF!	2.63	2000.00	>RL
51	V	1	45	102.200	ppb	#REF!	3.27	2000.00	>RL
52	Cr	1	45	61.590	ppb	#REF!	3.51	2000.00	>RL
55	Mn	1	45	702.600	ppb	#REF!	2.74	2000.00	>RL
56	Fe	1	72	66290.000	ppb	#REF!	2.81	10000.00	OUTCAL
59	Co	1	72	25.850	ppb	#REF!	2.51	2000.00	>RL
60	Ni	1	72	40.200	ppb	#REF!	3.55	2000.00	>RL
63	Cu	1	72	23.020	ppb	#REF!	1.96	2000.00	>RL
66	Zn	1	72	190.400	ppb	#REF!	2.96	2000.00	>RL
75	As	1	72	22.670	ppb	#REF!	2.52	2000.00	>RL
78	Se	1	72	14.520	ppb	#REF!	1.48	2000.00	>RL
88	Sr	2	115	243.300	ppb	#REF!	1.70	2000.00	>RL
95	Mo	2	115	1.042	ppb	#REF!	4.28	2000.00	ND
107	Ag	2	115	0.204	ppb	#REF!	13.19	500.00	ND
111	Cd	2	115	1.041	ppb	#REF!	12.79	2000.00	J
118	Sn	2	115	5.691	ppb	#REF!	0.66	2000.00	ND
121	Sb	2	115	0.715	ppb	#REF!	0.60	500.00	ND
137	Ba	2	115	319.700	ppb	#REF!	0.89	2000.00	>RL
205	Tl	2	209	0.654	ppb	#REF!	3.55	2000.00	ND
208	Pb	2	209	40.970	ppb	#REF!	0.76	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-9087.78	4.77	36.77	-24715.5	70 - 120	ISFail
45	Sc	1	137347.03	0.77	157844.06	87.0	70 - 120	
45	Sc	2	5241392.50	1.62	5827273.50	89.9	70 - 120	
72	Ge	1	73065.05	1.22	86621.49	84.3	70 - 120	
115	In	2	4988837.50	0.43	6276207.00	79.5	70 - 120	
209	Bi	2	3459952.80	0.58	4446753.50	77.8	70 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\084SMPL.D\084SMPL.D#

Date Acquired:	Aug 10 2016 07:35 pm	Sample Name:	**1607317-07A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD1
Operator:	KL	Bench Diln:	5
Last Cal. Update:	Aug 10 2016 01:05 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	59.710	ppb	#REF!	1.68	2000.00	>RL
9	Be	2	45	2.495	ppb	#REF!	2.54	2000.00	>RL
11	B	2	45	47.690	ppb	#REF!	2.59	2000.00	>RL
23	Na	1	45	8497.000	ppb	#REF!	1.76	25000.00	>RL
24	Mg	1	45	15080.000	ppb	#REF!	2.71	25000.00	>RL
27	Al	1	45	73930.000	ppb	#REF!	3.55	10000.00	OUTCAL
39	K	1	45	12700.000	ppb	#REF!	1.52	25000.00	>RL
44	Ca	2	45	105700.000	ppb	#REF!	2.48	25000.00	OUTCAL
47	Ti	1	45	321.800	ppb	#REF!	2.61	2000.00	>RL
51	V	1	45	99.620	ppb	#REF!	3.05	2000.00	>RL
52	Cr	1	45	74.040	ppb	#REF!	2.88	2000.00	>RL
55	Mn	1	45	572.400	ppb	#REF!	2.75	2000.00	>RL
56	Fe	1	72	56840.000	ppb	#REF!	3.22	10000.00	OUTCAL
59	Co	1	72	20.080	ppb	#REF!	2.43	2000.00	>RL
60	Ni	1	72	45.250	ppb	#REF!	2.63	2000.00	>RL
63	Cu	1	72	19.360	ppb	#REF!	3.08	2000.00	>RL
66	Zn	1	72	158.300	ppb	#REF!	3.03	2000.00	>RL
75	As	1	72	21.130	ppb	#REF!	2.73	2000.00	>RL
78	Se	1	72	12.920	ppb	#REF!	5.74	2000.00	>RL
88	Sr	2	115	459.500	ppb	#REF!	2.41	2000.00	>RL
95	Mo	2	115	2.404	ppb	#REF!	3.94	2000.00	J
107	Ag	2	115	0.145	ppb	#REF!	4.52	500.00	ND
111	Cd	2	115	1.221	ppb	#REF!	4.30	2000.00	>RL
118	Sn	2	115	5.551	ppb	#REF!	1.75	2000.00	ND
121	Sb	2	115	0.349	ppb	#REF!	6.03	500.00	ND
137	Ba	2	115	402.300	ppb	#REF!	1.25	2000.00	>RL
205	Tl	2	209	0.603	ppb	#REF!	3.01	2000.00	ND
208	Pb	2	209	30.490	ppb	#REF!	1.11	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-9223.52	3.92	36.77	-25084.6	70 - 120	ISFail
45	Sc	1	142160.34	1.35	157844.06	90.1	70 - 120	
45	Sc	2	5504588.50	2.20	5827273.50	94.5	70 - 120	
72	Ge	1	75804.82	0.78	86621.49	87.5	70 - 120	
115	In	2	5308186.00	1.80	6276207.00	84.6	70 - 120	
209	Bi	2	3564735.80	1.23	4446753.50	80.2	70 - 120	

CCV QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\085CCV1.D\085CCV1.D#

Date Acquired:	Aug 10 2016 07:41 pm	Sample Name:	**CCV3-160810**
Acq. Method:	DHL_3Fe.M	Misc Info:	CCV ICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 10 2016 01:05 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	228.60	ppb	1.06	200.00	90 -	110	114.3	Fail
9	Be	2	45	211.80	ppb	1.56	200.00	90 -	110	105.9	
11	B	2	45	199.00	ppb	1.48	200.00	90 -	110	99.5	
23	Na	1	45	5728.00	ppb	1.72	5000.00	90 -	110	114.6	Fail
24	Mg	1	45	5369.00	ppb	2.39	5000.00	90 -	110	107.4	
27	Al	1	45	5328.00	ppb	3.48	5000.00	90 -	110	106.6	
39	K	1	45	5341.00	ppb	1.02	5000.00	90 -	110	106.8	
44	Ca	2	45	5699.00	ppb	1.79	5000.00	90 -	110	114.0	Fail
47	Ti	1	45	207.80	ppb	3.24	200.00	90 -	110	103.9	
51	V	1	45	209.20	ppb	2.80	200.00	90 -	110	104.6	
52	Cr	1	45	210.40	ppb	2.98	200.00	90 -	110	105.2	
55	Mn	1	45	209.80	ppb	2.91	200.00	90 -	110	104.9	
56	Fe	1	72	5269.00	ppb	3.17	5000.00	90 -	110	105.4	
59	Co	1	72	211.90	ppb	3.11	200.00	90 -	110	106.0	
60	Ni	1	72	207.80	ppb	2.47	200.00	90 -	110	103.9	
63	Cu	1	72	212.60	ppb	2.52	200.00	90 -	110	106.3	
66	Zn	1	72	212.90	ppb	2.26	200.00	90 -	110	106.5	
75	As	1	72	209.60	ppb	1.97	200.00	90 -	110	104.8	
78	Se	1	72	211.30	ppb	3.35	200.00	90 -	110	105.7	
88	Sr	2	115	233.30	ppb	2.19	200.00	90 -	110	116.7	Fail
95	Mo	2	115	220.90	ppb	1.92	200.00	90 -	110	110.5	Fail
107	Ag	2	115	209.90	ppb	1.58	200.00	90 -	110	105.0	
111	Cd	2	115	208.90	ppb	0.81	200.00	90 -	110	104.5	
118	Sn	2	115	206.40	ppb	1.27	200.00	90 -	110	103.2	
121	Sb	2	115	203.80	ppb	0.88	200.00	90 -	110	101.9	
137	Ba	2	115	203.00	ppb	1.36	200.00	90 -	110	101.5	
205	Tl	2	209	214.20	ppb	0.52	200.00	90 -	110	107.1	
208	Pb	2	209	203.20	ppb	0.96	200.00	90 -	110	101.6	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	-67866.80	0.86	36.77	-184573.1	70 -	120		ISFail
45	Sc	1	139865.91	0.42	157844.06	88.6	70 -	120		
45	Sc	2	5305360.50	2.19	5827273.50	91.0	70 -	120		
72	Ge	1	76163.90	0.19	86621.49	87.9	70 -	120		
115	In	2	4746292.00	1.15	6276207.00	75.6	70 -	120		
209	Bi	2	3442046.50	1.24	4446753.50	77.4	70 -	120		

CCV QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\087LCVL.D\087LCVL.D#

Date Acquired:	Aug 10 2016 07:53 pm	Sample Name:	**LCVL3-160810**
Acq. Method:	DHL_3Fe.M	Misc Info:	LCVLICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 10 2016 01:05 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	11.33	ppb	1.90	10.00	70 -	130	113.3	
9	Be	2	45	1.08	ppb	4.80	1.00	70 -	130	107.6	
11	B	2	45	20.91	ppb	2.17	20.00	70 -	130	104.6	
23	Na	1	45	104.00	ppb	2.07	100.00	70 -	130	104.0	
24	Mg	1	45	110.10	ppb	2.35	100.00	70 -	130	110.1	
27	Al	1	45	113.30	ppb	6.13	100.00	70 -	130	113.3	
39	K	1	45	106.40	ppb	0.94	100.00	70 -	130	106.4	
44	Ca	2	45	112.50	ppb	5.01	100.00	70 -	130	112.5	
47	Ti	1	45	5.27	ppb	6.72	5.00	70 -	130	105.5	
51	V	1	45	1.00	ppb	6.08	1.00	70 -	130	99.9	
52	Cr	1	45	5.27	ppb	3.44	5.00	70 -	130	105.4	
55	Mn	1	45	5.30	ppb	5.85	5.00	70 -	130	106.0	
56	Fe	1	72	112.40	ppb	4.44	100.00	70 -	130	112.4	
59	Co	1	72	5.25	ppb	3.35	5.00	70 -	130	105.1	
60	Ni	1	72	5.20	ppb	5.25	5.00	70 -	130	103.9	
63	Cu	1	72	5.30	ppb	4.88	5.00	70 -	130	106.1	
66	Zn	1	72	5.10	ppb	1.14	5.00	70 -	130	101.9	
75	As	1	72	5.23	ppb	1.26	5.00	70 -	130	104.7	
78	Se	1	72	5.41	ppb	5.35	5.00	70 -	130	108.3	
88	Sr	2	115	5.58	ppb	1.02	5.00	70 -	130	111.5	
95	Mo	2	115	5.34	ppb	1.92	5.00	70 -	130	106.9	
107	Ag	2	115	2.15	ppb	1.50	2.00	70 -	130	107.6	
111	Cd	2	115	1.10	ppb	2.16	1.00	70 -	130	110.1	
118	Sn	2	115	5.13	ppb	2.14	5.00	70 -	130	102.6	
121	Sb	2	115	2.06	ppb	2.42	2.00	70 -	130	103.1	
137	Ba	2	115	5.03	ppb	1.56	5.00	70 -	130	100.7	
205	Tl	2	209	1.10	ppb	3.05	1.00	70 -	130	110.2	
208	Pb	2	209	1.09	ppb	3.59	1.00	70 -	130	109.0	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	-2118.22	3.54	36.77	-5760.8	70 -	120	ISFail
45	Sc	1	138201.03	0.58	157844.06	87.6	70 -	120	
45	Sc	2	5241182.50	1.47	5827273.50	89.9	70 -	120	
72	Ge	1	75282.13	0.93	86621.49	86.9	70 -	120	
115	In	2	4910939.00	0.99	6276207.00	78.2	70 -	120	
209	Bi	2	3588281.30	0.80	4446753.50	80.7	70 -	120	

CCB QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\088_CCB.D\088_CCB.D#

Date Acquired:	Aug 10 2016 07:59 pm	Sample Name:	**CCB3-160810**
Acq. Method:	DHL_3Fe.M	Misc Info:	CCB ICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 10 2016 01:05 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	MDL S	MDL Aq	Flag
7	Li	2	45	0.130	ppb	7.80	2.00	2.00	
9	Be	2	45	0.024	ppb	29.23	0.40	0.30	
11	B	2	45	2.166	ppb	3.07	10.00	10.00	
23	Na	1	45	3.339	ppb	1.60	50.00	#####	
24	Mg	1	45	1.692	ppb	11.72	50.00	#####	
27	Al	1	45	9.499	ppb	5.31	50.00	10.00	
39	K	1	45	8.680	ppb	0.61	50.00	#####	
44	Ca	2	45	26.130	ppb	8.44	50.00	#####	
47	Ti	1	45	0.060	ppb	33.32	4.00	3.00	
51	V	1	45	-0.005	ppb	10.77	4.00	3.00	
52	Cr	1	45	0.018	ppb	10.46	2.00	2.00	
55	Mn	1	45	0.075	ppb	22.03	2.00	3.00	
56	Fe	1	72	1.209	ppb	16.37	50.00	30.00	
59	Co	1	72	0.029	ppb	18.16	2.00	3.00	
60	Ni	1	72	0.106	ppb	15.38	2.00	3.00	
63	Cu	1	72	0.069	ppb	2.22	2.00	2.00	
66	Zn	1	72	1.071	ppb	3.78	4.00	2.00	
75	As	1	72	-0.024	ppb	3.00	2.00	2.00	
78	Se	1	72	0.088	ppb	17.83	0.60	2.00	
88	Sr	2	115	0.138	ppb	7.93	4.00	3.00	
95	Mo	2	115	0.069	ppb	10.42	2.00	2.00	
107	Ag	2	115	0.020	ppb	3.07	0.40	1.00	
111	Cd	2	115	0.045	ppb	11.57	0.40	0.30	
118	Sn	2	115	0.089	ppb	12.02	20.00	3.00	
121	Sb	2	115	0.051	ppb	12.07	2.00	0.80	
137	Ba	2	115	0.104	ppb	13.47	2.00	3.00	
205	Tl	2	209	0.096	ppb	8.22	2.00	0.50	
208	Pb	2	209	0.047	ppb	12.03	0.40	0.30	

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	RHigh	-24.61	36.89	36.77	-66.9	70 - 120	ISFail
45	Sc	1		139436.95	1.35	157844.06	88.3	70 - 120	
45	Sc	2		5229415.00	1.76	5827273.50	89.7	70 - 120	
72	Ge	1		76538.14	1.47	86621.49	88.4	70 - 120	
115	In	2		4959201.00	1.52	6276207.00	79.0	70 - 120	
209	Bi	2		3613380.80	1.28	4446753.50	81.3	70 - 120	

PB QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\089__PB.D\089__PB.D#

Date Acquired:	Aug 10 2016 08:05 pm	Sample Name:	**MB-76716**
Acq. Method:	DHL_3Fe.M	Misc Info:	MBLKICPMS_TSDOD
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	Aug 10 2016 01:05 pm	Auto Dil:	Undiluted
Instrument:	ICPMS3	Total Dil:	5.00

QC Elements

Element				Conc.		RSD(%)	MDL	RL	Flag
7	Li	2	45	0.077	ppb	1.57	2.0	8.00	
9	Be	2	45	-0.003	ppb	7.14	0.4	1.20	
11	B	2	45	1.216	ppb	3.20	10.0	30.00	
23	Na	1	45	-1.529	ppb	3.25	50.0	#####	
24	Mg	1	45	5.869	ppb	1.40	50.0	#####	
27	Al	1	45	5.205	ppb	8.11	50.0	#####	
39	K	1	45	11.790	ppb	1.69	50.0	#####	
44	Ca	2	45	28.190	ppb	5.67	50.0	#####	
47	Ti	1	45	0.136	ppb	53.29	4.0	10.00	
51	V	1	45	-0.010	ppb	20.51	4.0	10.00	
52	Cr	1	45	0.144	ppb	15.99	2.0	8.00	
55	Mn	1	45	0.134	ppb	18.07	2.0	8.00	
56	Fe	1	72	3.122	ppb	11.58	50.0	#####	
59	Co	1	72	0.004	ppb	39.75	2.0	8.00	
60	Ni	1	72	0.111	ppb	12.45	2.0	8.00	
63	Cu	1	72	0.193	ppb	4.76	2.0	8.00	
66	Zn	1	72	3.543	ppb	2.00	4.0	10.00	
75	As	1	72	-0.113	ppb	5.48	2.0	4.00	
78	Se	1	72	0.087	ppb	4.09	0.6	2.00	
88	Sr	2	115	0.103	ppb	5.99	4.0	10.00	
95	Mo	2	115	0.034	ppb	29.41	2.0	8.00	
107	Ag	2	115	0.013	ppb	12.25	0.4	0.80	
111	Cd	2	115	0.000	ppb	167.88	0.4	1.20	
118	Sn	2	115	4.334	ppb	1.54	20.0	40.00	
121	Sb	2	115	0.013	ppb	9.80	2.0	4.00	
137	Ba	2	115	0.088	ppb	13.59	2.0	8.00	
205	Tl	2	209	0.051	ppb	7.82	2.0	4.00	
208	Pb	2	209	0.071	ppb	4.23	0.4	1.20	

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	RHig	-26.82	66.18	36.77	-72.9	70 - 120	ISFail
45	Sc	1		143243.34	0.69	157844.06	90.7	70 - 120	
45	Sc	2		5257679.50	2.16	5827273.50	90.2	70 - 120	
72	Ge	1		76715.16	0.82	86621.49	88.6	70 - 120	
115	In	2		4787413.00	1.49	6276207.00	76.3	70 - 120	
209	Bi	2		3534476.30	1.03	4446753.50	79.5	70 - 120	

LCS QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\090_LCS.D\090_LCS.D#

Date Acquired:	Aug 10 2016 08:11 pm	Sample Name:	**LCS-76716**
Acq. Method:	DHL_3Fe.M	Misc Info:	LCS ICPMS_TSDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	Aug 10 2016 01:05 pm	Auto Dil:	Undiluted
Instrument:	ICPMS3	Total Dil:	5.00

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	214.70	ppb	0.95	200.00	80 -	120	107.4	
9	Be	2	45	195.20	ppb	0.87	200.00	80 -	120	97.6	
11	B	2	45	191.00	ppb	1.04	200.00	80 -	120	95.5	
23	Na	1	45	5597.00	ppb	3.42	5000.00	80 -	120	111.9	
24	Mg	1	45	5268.00	ppb	2.41	5000.00	80 -	120	105.4	
27	Al	1	45	1064.00	ppb	2.84	1000.00	80 -	120	106.4	
39	K	1	45	5219.00	ppb	1.76	5000.00	80 -	120	104.4	
44	Ca	2	45	5499.00	ppb	0.88	5000.00	80 -	120	110.0	
47	Ti	1	45	206.90	ppb	3.58	200.00	80 -	120	103.5	
51	V	1	45	204.30	ppb	3.18	200.00	80 -	120	102.2	
52	Cr	1	45	205.70	ppb	3.16	200.00	80 -	120	102.9	
55	Mn	1	45	208.70	ppb	2.65	200.00	80 -	120	104.4	
56	Fe	1	72	1047.00	ppb	3.27	1000.00	80 -	120	104.7	
59	Co	1	72	211.20	ppb	2.65	200.00	80 -	120	105.6	
60	Ni	1	72	206.30	ppb	3.11	200.00	80 -	120	103.2	
63	Cu	1	72	209.80	ppb	2.12	200.00	80 -	120	104.9	
66	Zn	1	72	207.90	ppb	2.19	200.00	80 -	120	104.0	
75	As	1	72	201.60	ppb	2.34	200.00	80 -	120	100.8	
78	Se	1	72	195.50	ppb	3.48	200.00	80 -	120	97.8	
88	Sr	2	115	232.20	ppb	1.53	200.00	80 -	120	116.1	
95	Mo	2	115	217.60	ppb	1.54	200.00	80 -	120	108.8	
107	Ag	2	115	205.70	ppb	0.98	200.00	80 -	120	102.9	
111	Cd	2	115	200.60	ppb	1.30	200.00	80 -	120	100.3	
118	Sn	2	115	210.10	ppb	0.60	200.00	80 -	120	105.1	
121	Sb	2	115	195.30	ppb	0.72	200.00	80 -	120	97.7	
137	Ba	2	115	203.60	ppb	1.05	200.00	80 -	120	101.8	
205	Tl	2	209	214.90	ppb	0.43	200.00	80 -	120	107.5	
208	Pb	2	209	203.00	ppb	0.56	200.00	80 -	120	101.5	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	-62863.27	1.70	36.77	-170965.3	70 -	120	ISFail
45	Sc	1	138957.77	0.32	157844.06	88.0	70 -	120	
45	Sc	2	5063692.00	0.78	5827273.50	86.9	70 -	120	
72	Ge	1	73428.23	0.59	86621.49	84.8	70 -	120	
115	In	2	4544809.00	0.13	6276207.00	72.4	70 -	120	
209	Bi	2	3348332.50	0.47	4446753.50	75.3	70 -	120	

LCS QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\091_LCS.D\091_LCS.D#

Date Acquired:	Aug 10 2016 08:17 pm	Sample Name:	**LCSD-76716**
Acq. Method:	DHL_3Fe.M	Misc Info:	LCSDICPMS_TSDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	Aug 10 2016 01:05 pm	Auto Dil:	Undiluted
Instrument:	ICPMS3	Total Dil:	5.00

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	209.10	ppb	0.92	200.00	80 -	120	104.6	
9	Be	2	45	192.60	ppb	1.01	200.00	80 -	120	96.3	
11	B	2	45	186.30	ppb	0.73	200.00	80 -	120	93.2	
23	Na	1	45	5508.00	ppb	2.51	5000.00	80 -	120	110.2	
24	Mg	1	45	5191.00	ppb	2.76	5000.00	80 -	120	103.8	
27	Al	1	45	1047.00	ppb	2.17	1000.00	80 -	120	104.7	
39	K	1	45	5152.00	ppb	2.01	5000.00	80 -	120	103.0	
44	Ca	2	45	5381.00	ppb	1.35	5000.00	80 -	120	107.6	
47	Ti	1	45	206.90	ppb	6.19	200.00	80 -	120	103.5	
51	V	1	45	201.20	ppb	3.01	200.00	80 -	120	100.6	
52	Cr	1	45	202.60	ppb	3.59	200.00	80 -	120	101.3	
55	Mn	1	45	204.50	ppb	2.58	200.00	80 -	120	102.3	
56	Fe	1	72	1018.00	ppb	3.27	1000.00	80 -	120	101.8	
59	Co	1	72	205.80	ppb	2.93	200.00	80 -	120	102.9	
60	Ni	1	72	201.60	ppb	2.40	200.00	80 -	120	100.8	
63	Cu	1	72	205.00	ppb	2.53	200.00	80 -	120	102.5	
66	Zn	1	72	204.70	ppb	3.02	200.00	80 -	120	102.4	
75	As	1	72	199.60	ppb	2.26	200.00	80 -	120	99.8	
78	Se	1	72	195.60	ppb	1.40	200.00	80 -	120	97.8	
88	Sr	2	115	225.50	ppb	1.05	200.00	80 -	120	112.8	
95	Mo	2	115	213.30	ppb	1.30	200.00	80 -	120	106.7	
107	Ag	2	115	202.40	ppb	1.06	200.00	80 -	120	101.2	
111	Cd	2	115	197.70	ppb	1.10	200.00	80 -	120	98.9	
118	Sn	2	115	206.70	ppb	0.43	200.00	80 -	120	103.4	
121	Sb	2	115	195.40	ppb	0.03	200.00	80 -	120	97.7	
137	Ba	2	115	199.70	ppb	0.54	200.00	80 -	120	99.9	
205	Tl	2	209	209.50	ppb	0.32	200.00	80 -	120	104.8	
208	Pb	2	209	198.60	ppb	0.71	200.00	80 -	120	99.3	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	-59964.26	1.58	36.77	-163081.1	70 -	120	ISFail
45	Sc	1	135174.03	1.00	157844.06	85.6	70 -	120	
45	Sc	2	4950650.50	0.74	5827273.50	85.0	70 -	120	
72	Ge	1	72003.48	0.47	86621.49	83.1	70 -	120	
115	In	2	4576596.00	0.70	6276207.00	72.9	70 -	120	
209	Bi	2	3395703.00	0.43	4446753.50	76.4	70 -	120	

Sample QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\093AREF.D\093AREF.D#

Date Acquired:	Aug 10 2016 08:30 pm	Sample Name:	**1607317-09A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD1
Operator:	KL	Bench Diln:	5
Last Cal. Update:	Aug 10 2016 01:05 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	50.760	ppb	#REF!	0.92	2000.00	>RL
9	Be	2	45	2.325	ppb	#REF!	1.63	2000.00	>RL
11	B	2	45	52.500	ppb	#REF!	1.82	2000.00	>RL
23	Na	1	45	3282.000	ppb	#REF!	3.32	25000.00	>RL
24	Mg	1	45	12820.000	ppb	#REF!	2.44	25000.00	>RL
27	Al	1	45	70500.000	ppb	#REF!	4.07	10000.00	OUTCAL
39	K	1	45	14640.000	ppb	#REF!	2.39	25000.00	>RL
44	Ca	2	45	53410.000	ppb	#REF!	1.64	25000.00	OUTCAL
47	Ti	1	45	205.300	ppb	#REF!	4.27	2000.00	>RL
51	V	1	45	87.360	ppb	#REF!	2.83	2000.00	>RL
52	Cr	1	45	51.470	ppb	#REF!	3.58	2000.00	>RL
55	Mn	1	45	749.900	ppb	#REF!	2.95	2000.00	>RL
56	Fe	1	72	57960.000	ppb	#REF!	3.64	10000.00	OUTCAL
59	Co	1	72	22.610	ppb	#REF!	2.60	2000.00	>RL
60	Ni	1	72	34.390	ppb	#REF!	2.86	2000.00	>RL
63	Cu	1	72	28.300	ppb	#REF!	2.65	2000.00	>RL
66	Zn	1	72	253.500	ppb	#REF!	1.90	2000.00	>RL
75	As	1	72	35.350	ppb	#REF!	2.54	2000.00	>RL
78	Se	1	72	11.780	ppb	#REF!	15.86	2000.00	>RL
88	Sr	2	115	299.200	ppb	#REF!	1.63	2000.00	>RL
95	Mo	2	115	1.733	ppb	#REF!	2.19	2000.00	ND
107	Ag	2	115	0.318	ppb	#REF!	6.99	500.00	ND
111	Cd	2	115	1.311	ppb	#REF!	9.11	2000.00	>RL
118	Sn	2	115	5.727	ppb	#REF!	2.14	2000.00	J
121	Sb	2	115	3.393	ppb	#REF!	0.54	500.00	J
137	Ba	2	115	440.600	ppb	#REF!	0.58	2000.00	>RL
205	Tl	2	209	0.676	ppb	#REF!	2.05	2000.00	ND
208	Pb	2	209	130.900	ppb	#REF!	0.87	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-7654.68	2.60	36.77	-20818.0	70 - 120	ISFail
45	Sc	1	137001.70	0.35	157844.06	86.8	70 - 120	
45	Sc	2	4726139.00	2.49	5827273.50	81.1	70 - 120	
72	Ge	1	71736.99	0.27	86621.49	82.8	70 - 120	
115	In	2	4437219.00	0.34	6276207.00	70.7	70 - 120	
209	Bi	2	3221387.80	0.49	4446753.50	72.4	70 - 120	

DT QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\094DT1.D\094DT1.D#

Date Acquired:	Aug 10 2016 08:35 pm	Sample Name:	**1607317-09A SD**
Acq. Method:	DHL_3Fe.M	Misc Info:	SD ICPMS_TSDOD1
Operator:	KL	Bench Diln:	25.00
Last Cal. Update:	Aug 10 2016 01:05 pm	Auto Diln:	Undiluted
Instrument:	ICPMS3	Total Diln:	25.00

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)	Rec(%)	Flag
7	Li	2	45	9.84	ppb	0.22	-1495.64	90 - 110	-3.3	
9	Be	2	45	0.49	ppb	9.17	2.33	90 - 110	105.5	GOOD
11	B	2	45	11.94	ppb	1.84	52.50	90 - 110	113.7	
23	Na	1	45	646.80	ppb	1.94	3282.00	90 - 110	98.5	GOOD
24	Mg	1	45	2460.00	ppb	2.96	12820.00	90 - 110	95.9	GOOD
27	Al	1	45	13310.00	ppb	3.58	70500.00	90 - 110	94.4	GOOD
39	K	1	45	2885.00	ppb	0.96	14640.00	90 - 110	98.5	GOOD
44	Ca	2	45	10890.00	ppb	1.39	53410.00	90 - 110	101.9	GOOD
47	Ti	1	45	44.10	ppb	7.19	205.30	90 - 110	107.4	GOOD
51	V	1	45	17.48	ppb	4.39	87.36	90 - 110	100.0	GOOD
52	Cr	1	45	10.40	ppb	3.98	51.47	90 - 110	101.0	GOOD
55	Mn	1	45	150.60	ppb	3.82	749.90	90 - 110	100.4	GOOD
56	Fe	1	72	11470.00	ppb	3.58	57960.00	90 - 110	98.9	GOOD
59	Co	1	72	4.55	ppb	4.91	22.61	90 - 110	100.6	GOOD
60	Ni	1	72	7.02	ppb	5.54	34.39	90 - 110	102.0	GOOD
63	Cu	1	72	5.87	ppb	2.36	28.30	90 - 110	103.6	GOOD
66	Zn	1	72	55.00	ppb	3.43	253.50	90 - 110	108.5	GOOD
75	As	1	72	7.17	ppb	3.14	35.35	90 - 110	101.5	GOOD
78	Se	1	72	2.98	ppb	12.97	11.78	90 - 110	126.4	
88	Sr	2	115	56.57	ppb	1.18	299.20	90 - 110	94.5	GOOD
95	Mo	2	115	0.35	ppb	11.23	1.73	90 - 110	102.0	GOOD
107	Ag	2	115	0.06	ppb	9.46	0.32	90 - 110	94.2	GOOD
111	Cd	2	115	0.30	ppb	10.71	1.31	90 - 110	114.8	
118	Sn	2	115	1.12	ppb	1.82	5.73	90 - 110	97.3	GOOD
121	Sb	2	115	0.75	ppb	2.12	3.39	90 - 110	110.2	
137	Ba	2	115	86.52	ppb	0.65	440.60	90 - 110	98.2	GOOD
205	Tl	2	209	0.18	ppb	9.31	0.68	90 - 110	131.5	
208	Pb	2	209	25.49	ppb	0.46	130.90	90 - 110	97.4	GOOD

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	RHig	-1495.64	9.29	36.77	-4067.6	70 -	120	ISFail
45	Sc	1		133766.89	0.63	157844.06	84.7	70 -	120	
45	Sc	2		4632488.50	1.11	5827273.50	79.5	70 -	120	
72	Ge	1		71798.76	0.46	86621.49	82.9	70 -	120	
115	In	2		4408075.00	0.38	6276207.00	70.2	70 -	120	
209	Bi	2		3359444.30	0.27	4446753.50	75.5	70 -	120	

Sample QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\095SMPL.D\095SMPL.D#

Date Acquired:	Aug 10 2016 08:41 pm	Sample Name:	**1607317-08A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD1
Operator:	KL	Bench Diln:	5
Last Cal. Update:	Aug 10 2016 01:05 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	56.110	ppb	#REF!	0.79	2000.00	>RL
9	Be	2	45	1.928	ppb	#REF!	4.18	2000.00	>RL
11	B	2	45	56.470	ppb	#REF!	0.69	2000.00	>RL
23	Na	1	45	8222.000	ppb	#REF!	1.77	25000.00	>RL
24	Mg	1	45	14230.000	ppb	#REF!	3.42	25000.00	>RL
27	Al	1	45	62990.000	ppb	#REF!	3.35	10000.00	OUTCAL
39	K	1	45	9999.000	ppb	#REF!	1.75	25000.00	>RL
44	Ca	2	45	212300.000	ppb	#REF!	1.68	25000.00	OUTCAL
47	Ti	1	45	357.100	ppb	#REF!	4.55	2000.00	>RL
51	V	1	45	96.230	ppb	#REF!	3.29	2000.00	>RL
52	Cr	1	45	52.850	ppb	#REF!	2.30	2000.00	>RL
55	Mn	1	45	460.500	ppb	#REF!	2.33	2000.00	>RL
56	Fe	1	72	49870.000	ppb	#REF!	2.95	10000.00	OUTCAL
59	Co	1	72	17.240	ppb	#REF!	2.33	2000.00	>RL
60	Ni	1	72	31.310	ppb	#REF!	1.18	2000.00	>RL
63	Cu	1	72	13.880	ppb	#REF!	1.92	2000.00	>RL
66	Zn	1	72	121.100	ppb	#REF!	1.97	2000.00	>RL
75	As	1	72	18.080	ppb	#REF!	2.40	2000.00	>RL
78	Se	1	72	10.530	ppb	#REF!	4.60	2000.00	>RL
88	Sr	2	115	640.300	ppb	#REF!	1.36	2000.00	>RL
95	Mo	2	115	1.478	ppb	#REF!	3.37	2000.00	ND
107	Ag	2	115	0.124	ppb	#REF!	11.57	500.00	ND
111	Cd	2	115	1.097	ppb	#REF!	6.46	2000.00	J
118	Sn	2	115	5.415	ppb	#REF!	0.50	2000.00	ND
121	Sb	2	115	0.299	ppb	#REF!	3.01	500.00	ND
137	Ba	2	115	515.300	ppb	#REF!	0.72	2000.00	>RL
205	Tl	2	209	0.717	ppb	#REF!	4.10	2000.00	ND
208	Pb	2	209	22.970	ppb	#REF!	1.14	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)		Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-8157.55	5.35	RHigh	36.77	-22185.6	70 - 120	ISFail
45	Sc	1	132390.66	0.66		157844.06	83.9	70 - 120	
45	Sc	2	4916461.00	1.27		5827273.50	84.4	70 - 120	
72	Ge	1	69568.70	0.74		86621.49	80.3	70 - 120	
115	In	2	4875499.50	0.25		6276207.00	77.7	70 - 120	
209	Bi	2	3326897.30	0.96		4446753.50	74.8	70 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\096SMPL.D\096SMPL.D#

Date Acquired:	Aug 10 2016 08:47 pm	Sample Name:	**1607317-10A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD1
Operator:	KL	Bench Diln:	5
Last Cal. Update:	Aug 10 2016 01:05 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	57.210	ppb	#REF!	1.22	2000.00	>RL
9	Be	2	45	2.838	ppb	#REF!	2.65	2000.00	>RL
11	B	2	45	46.970	ppb	#REF!	0.68	2000.00	>RL
23	Na	1	45	6744.000	ppb	#REF!	2.37	25000.00	>RL
24	Mg	1	45	15020.000	ppb	#REF!	3.19	25000.00	>RL
27	Al	1	45	91620.000	ppb	#REF!	3.67	10000.00	OUTCAL
39	K	1	45	20140.000	ppb	#REF!	1.68	25000.00	>RL
44	Ca	2	45	31000.000	ppb	#REF!	2.42	25000.00	OUTCAL
47	Ti	1	45	281.200	ppb	#REF!	2.90	2000.00	>RL
51	V	1	45	111.700	ppb	#REF!	2.64	2000.00	>RL
52	Cr	1	45	64.970	ppb	#REF!	3.49	2000.00	>RL
55	Mn	1	45	686.700	ppb	#REF!	4.32	2000.00	>RL
56	Fe	1	72	71200.000	ppb	#REF!	3.18	10000.00	OUTCAL
59	Co	1	72	23.660	ppb	#REF!	2.23	2000.00	>RL
60	Ni	1	72	39.550	ppb	#REF!	2.48	2000.00	>RL
63	Cu	1	72	22.170	ppb	#REF!	3.23	2000.00	>RL
66	Zn	1	72	196.500	ppb	#REF!	2.52	2000.00	>RL
75	As	1	72	24.780	ppb	#REF!	2.13	2000.00	>RL
78	Se	1	72	13.510	ppb	#REF!	3.96	2000.00	>RL
88	Sr	2	115	260.800	ppb	#REF!	1.48	2000.00	>RL
95	Mo	2	115	1.222	ppb	#REF!	4.70	2000.00	ND
107	Ag	2	115	0.206	ppb	#REF!	6.71	500.00	ND
111	Cd	2	115	1.156	ppb	#REF!	5.08	2000.00	J
118	Sn	2	115	5.825	ppb	#REF!	1.11	2000.00	ND
121	Sb	2	115	1.247	ppb	#REF!	4.90	500.00	ND
137	Ba	2	115	331.300	ppb	#REF!	0.83	2000.00	>RL
205	Tl	2	209	0.739	ppb	#REF!	3.42	2000.00	ND
208	Pb	2	209	38.210	ppb	#REF!	0.97	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-8555.93	2.63	36.77	-23269.0	70 - 120	ISFail
45	Sc	1	139317.70	1.16	157844.06	88.3	70 - 120	
45	Sc	2	4868025.50	1.05	5827273.50	83.5	70 - 120	
72	Ge	1	74030.99	0.26	86621.49	85.5	70 - 120	
115	In	2	4925523.50	1.29	6276207.00	78.5	70 - 120	
209	Bi	2	3402979.80	1.01	4446753.50	76.5	70 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\097SMPL.D\097SMPL.D#

Date Acquired:	Aug 10 2016 08:53 pm	Sample Name:	**1607317-11A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD1
Operator:	KL	Bench Diln:	5
Last Cal. Update:	Aug 10 2016 01:05 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	56.510	ppb	#REF!	1.97	2000.00	>RL
9	Be	2	45	2.405	ppb	#REF!	2.35	2000.00	>RL
11	B	2	45	50.530	ppb	#REF!	1.94	2000.00	>RL
23	Na	1	45	6671.000	ppb	#REF!	2.19	25000.00	>RL
24	Mg	1	45	15050.000	ppb	#REF!	2.53	25000.00	>RL
27	Al	1	45	77040.000	ppb	#REF!	2.85	10000.00	OUTCAL
39	K	1	45	13200.000	ppb	#REF!	0.98	25000.00	>RL
44	Ca	2	45	107600.000	ppb	#REF!	2.75	25000.00	OUTCAL
47	Ti	1	45	295.100	ppb	#REF!	5.79	2000.00	>RL
51	V	1	45	105.700	ppb	#REF!	3.11	2000.00	>RL
52	Cr	1	45	57.080	ppb	#REF!	3.65	2000.00	>RL
55	Mn	1	45	627.400	ppb	#REF!	2.55	2000.00	>RL
56	Fe	1	72	64180.000	ppb	#REF!	3.54	10000.00	OUTCAL
59	Co	1	72	21.770	ppb	#REF!	2.31	2000.00	>RL
60	Ni	1	72	36.210	ppb	#REF!	3.34	2000.00	>RL
63	Cu	1	72	18.470	ppb	#REF!	3.11	2000.00	>RL
66	Zn	1	72	160.400	ppb	#REF!	2.72	2000.00	>RL
75	As	1	72	22.130	ppb	#REF!	2.36	2000.00	>RL
78	Se	1	72	12.330	ppb	#REF!	4.93	2000.00	>RL
88	Sr	2	115	452.900	ppb	#REF!	1.90	2000.00	>RL
95	Mo	2	115	1.560	ppb	#REF!	7.43	2000.00	ND
107	Ag	2	115	0.177	ppb	#REF!	11.54	500.00	ND
111	Cd	2	115	1.167	ppb	#REF!	12.61	2000.00	J
118	Sn	2	115	5.547	ppb	#REF!	1.84	2000.00	ND
121	Sb	2	115	0.428	ppb	#REF!	4.26	500.00	ND
137	Ba	2	115	391.800	ppb	#REF!	2.03	2000.00	>RL
205	Tl	2	209	0.630	ppb	#REF!	4.31	2000.00	ND
208	Pb	2	209	30.430	ppb	#REF!	1.65	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-8405.16	0.38	36.77	-22859.0	70 - 120	ISFail
45	Sc	1	139664.56	0.06	157844.06	88.5	70 - 120	
45	Sc	2	4925367.50	2.33	5827273.50	84.5	70 - 120	
72	Ge	1	74118.06	0.36	86621.49	85.6	70 - 120	
115	In	2	4946367.00	0.75	6276207.00	78.8	70 - 120	
209	Bi	2	3416259.00	1.47	4446753.50	76.8	70 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\098SMPL.D\098SMPL.D#

Date Acquired:	Aug 10 2016 08:59 pm	Sample Name:	**1607317-12A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD1
Operator:	KL	Bench Diln:	5
Last Cal. Update:	Aug 10 2016 01:05 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	55.780	ppb	#REF!	1.00	2000.00	>RL
9	Be	2	45	1.987	ppb	#REF!	2.41	2000.00	>RL
11	B	2	45	56.920	ppb	#REF!	0.80	2000.00	>RL
23	Na	1	45	7187.000	ppb	#REF!	2.04	25000.00	>RL
24	Mg	1	45	14310.000	ppb	#REF!	2.86	25000.00	>RL
27	Al	1	45	63600.000	ppb	#REF!	3.37	10000.00	OUTCAL
39	K	1	45	9880.000	ppb	#REF!	2.01	25000.00	>RL
44	Ca	2	45	211200.000	ppb	#REF!	0.53	25000.00	OUTCAL
47	Ti	1	45	333.900	ppb	#REF!	4.94	2000.00	>RL
51	V	1	45	102.500	ppb	#REF!	3.41	2000.00	>RL
52	Cr	1	45	58.480	ppb	#REF!	3.21	2000.00	>RL
55	Mn	1	45	440.900	ppb	#REF!	2.69	2000.00	>RL
56	Fe	1	72	52660.000	ppb	#REF!	3.52	10000.00	OUTCAL
59	Co	1	72	17.220	ppb	#REF!	4.41	2000.00	>RL
60	Ni	1	72	35.140	ppb	#REF!	2.53	2000.00	>RL
63	Cu	1	72	14.260	ppb	#REF!	3.52	2000.00	>RL
66	Zn	1	72	125.300	ppb	#REF!	3.90	2000.00	>RL
75	As	1	72	18.310	ppb	#REF!	2.60	2000.00	>RL
78	Se	1	72	10.910	ppb	#REF!	4.66	2000.00	>RL
88	Sr	2	115	664.500	ppb	#REF!	1.18	2000.00	>RL
95	Mo	2	115	1.789	ppb	#REF!	2.74	2000.00	ND
107	Ag	2	115	0.122	ppb	#REF!	12.57	500.00	ND
111	Cd	2	115	1.110	ppb	#REF!	8.80	2000.00	J
118	Sn	2	115	5.662	ppb	#REF!	8.60	2000.00	ND
121	Sb	2	115	0.250	ppb	#REF!	3.83	500.00	ND
137	Ba	2	115	773.500	ppb	#REF!	0.51	2000.00	>RL
205	Tl	2	209	0.512	ppb	#REF!	3.11	2000.00	ND
208	Pb	2	209	23.250	ppb	#REF!	0.42	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-8033.73	0.86	36.77	-21848.8	70 - 120	ISFail
45	Sc	1	127421.50	0.74	157844.06	80.7	70 - 120	
45	Sc	2	4738997.50	1.29	5827273.50	81.3	70 - 120	
72	Ge	1	67140.76	1.10	86621.49	77.5	70 - 120	
115	In	2	4802258.50	0.31	6276207.00	76.5	70 - 120	
209	Bi	2	3272505.50	0.46	4446753.50	73.6	70 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\099SMPL.D\099SMPL.D#

Date Acquired:	Aug 10 2016 09:05 pm	Sample Name:	**1607317-14A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD1
Operator:	KL	Bench Diln:	5
Last Cal. Update:	Aug 10 2016 01:05 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	64.280	ppb	#REF!	1.53	2000.00	>RL
9	Be	2	45	2.651	ppb	#REF!	2.16	2000.00	>RL
11	B	2	45	62.180	ppb	#REF!	1.99	2000.00	>RL
23	Na	1	45	4184.000	ppb	#REF!	2.84	25000.00	>RL
24	Mg	1	45	15210.000	ppb	#REF!	2.85	25000.00	>RL
27	Al	1	45	83670.000	ppb	#REF!	2.09	10000.00	OUTCAL
39	K	1	45	18410.000	ppb	#REF!	1.93	25000.00	>RL
44	Ca	2	45	59060.000	ppb	#REF!	2.53	25000.00	OUTCAL
47	Ti	1	45	209.000	ppb	#REF!	6.31	2000.00	>RL
51	V	1	45	112.100	ppb	#REF!	2.30	2000.00	>RL
52	Cr	1	45	64.420	ppb	#REF!	2.71	2000.00	>RL
55	Mn	1	45	647.900	ppb	#REF!	3.30	2000.00	>RL
56	Fe	1	72	70940.000	ppb	#REF!	3.14	10000.00	OUTCAL
59	Co	1	72	27.430	ppb	#REF!	3.14	2000.00	>RL
60	Ni	1	72	40.650	ppb	#REF!	1.96	2000.00	>RL
63	Cu	1	72	66.560	ppb	#REF!	1.33	2000.00	>RL
66	Zn	1	72	208.800	ppb	#REF!	2.83	2000.00	>RL
75	As	1	72	31.260	ppb	#REF!	2.22	2000.00	>RL
78	Se	1	72	14.440	ppb	#REF!	4.68	2000.00	>RL
88	Sr	2	115	331.800	ppb	#REF!	2.06	2000.00	>RL
95	Mo	2	115	1.569	ppb	#REF!	4.63	2000.00	ND
107	Ag	2	115	0.193	ppb	#REF!	12.71	500.00	ND
111	Cd	2	115	0.993	ppb	#REF!	6.59	2000.00	J
118	Sn	2	115	5.870	ppb	#REF!	1.46	2000.00	ND
121	Sb	2	115	2.406	ppb	#REF!	2.07	500.00	J
137	Ba	2	115	468.600	ppb	#REF!	1.38	2000.00	>RL
205	Tl	2	209	0.672	ppb	#REF!	2.62	2000.00	ND
208	Pb	2	209	236.700	ppb	#REF!	1.61	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-9563.52	3.38	36.77	-26009.3	70 - 120	ISFail
45	Sc	1	134437.83	0.05	157844.06	85.2	70 - 120	
45	Sc	2	4704937.50	2.86	5827273.50	80.7	70 - 120	
72	Ge	1	71816.37	0.20	86621.49	82.9	70 - 120	
115	In	2	4791577.00	1.21	6276207.00	76.3	70 - 120	
209	Bi	2	3318077.50	1.12	4446753.50	74.6	70 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\101SMPL.D\101SMPL.D#

Date Acquired:	Aug 10 2016 09:17 pm	Sample Name:	**1607317-15A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD1
Operator:	KL	Bench Diln:	5
Last Cal. Update:	Aug 10 2016 01:05 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	78.310	ppb	#REF!	0.74	2000.00	>RL
9	Be	2	45	2.808	ppb	#REF!	2.12	2000.00	>RL
11	B	2	45	81.160	ppb	#REF!	0.66	2000.00	>RL
23	Na	1	45	11270.000	ppb	#REF!	1.66	25000.00	>RL
24	Mg	1	45	18910.000	ppb	#REF!	2.91	25000.00	>RL
27	Al	1	45	93660.000	ppb	#REF!	2.42	10000.00	OUTCAL
39	K	1	45	17930.000	ppb	#REF!	0.38	25000.00	>RL
44	Ca	2	45	164900.000	ppb	#REF!	1.90	25000.00	OUTCAL
47	Ti	1	45	237.500	ppb	#REF!	3.03	2000.00	>RL
51	V	1	45	128.600	ppb	#REF!	2.26	2000.00	>RL
52	Cr	1	45	70.380	ppb	#REF!	2.84	2000.00	>RL
55	Mn	1	45	626.500	ppb	#REF!	2.87	2000.00	>RL
56	Fe	1	72	78420.000	ppb	#REF!	2.04	10000.00	OUTCAL
59	Co	1	72	27.270	ppb	#REF!	2.44	2000.00	>RL
60	Ni	1	72	42.510	ppb	#REF!	2.21	2000.00	>RL
63	Cu	1	72	21.800	ppb	#REF!	2.62	2000.00	>RL
66	Zn	1	72	188.800	ppb	#REF!	1.81	2000.00	>RL
75	As	1	72	25.440	ppb	#REF!	2.35	2000.00	>RL
78	Se	1	72	16.290	ppb	#REF!	8.77	2000.00	>RL
88	Sr	2	115	512.100	ppb	#REF!	0.98	2000.00	>RL
95	Mo	2	115	1.264	ppb	#REF!	3.63	2000.00	ND
107	Ag	2	115	0.158	ppb	#REF!	4.33	500.00	ND
111	Cd	2	115	1.306	ppb	#REF!	12.44	2000.00	>RL
118	Sn	2	115	5.811	ppb	#REF!	0.79	2000.00	ND
121	Sb	2	115	0.449	ppb	#REF!	12.17	500.00	ND
137	Ba	2	115	533.800	ppb	#REF!	0.76	2000.00	>RL
205	Tl	2	209	0.707	ppb	#REF!	0.91	2000.00	ND
208	Pb	2	209	45.810	ppb	#REF!	1.05	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-11506.52	1.74	36.77	-31293.6	70 - 120	ISFail
45	Sc	1	133375.73	0.45	157844.06	84.5	70 - 120	
45	Sc	2	4857134.00	2.09	5827273.50	83.4	70 - 120	
72	Ge	1	69832.52	0.53	86621.49	80.6	70 - 120	
115	In	2	4756943.00	0.32	6276207.00	75.8	70 - 120	
209	Bi	2	3253679.00	0.70	4446753.50	73.2	70 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\102SMPL.D\102SMPL.D#

Date Acquired:	Aug 10 2016 09:23 pm	Sample Name:	**1607317-16A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD1
Operator:	KL	Bench Diln:	5
Last Cal. Update:	Aug 10 2016 01:05 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	56.210	ppb	#REF!	1.74	2000.00	>RL
9	Be	2	45	2.166	ppb	#REF!	2.82	2000.00	>RL
11	B	2	45	98.270	ppb	#REF!	2.60	2000.00	>RL
23	Na	1	45	8274.000	ppb	#REF!	1.92	25000.00	>RL
24	Mg	1	45	14080.000	ppb	#REF!	3.49	25000.00	>RL
27	Al	1	45	53130.000	ppb	#REF!	4.10	10000.00	OUTCAL
39	K	1	45	13480.000	ppb	#REF!	2.64	25000.00	>RL
44	Ca	2	45	422400.000	ppb	#REF!	2.31	25000.00	OUTCAL
47	Ti	1	45	164.800	ppb	#REF!	5.26	2000.00	>RL
51	V	1	45	83.990	ppb	#REF!	3.87	2000.00	>RL
52	Cr	1	45	50.760	ppb	#REF!	3.25	2000.00	>RL
55	Mn	1	45	3994.000	ppb	#REF!	3.70	2000.00	OUTCAL
56	Fe	1	72	66410.000	ppb	#REF!	4.22	10000.00	OUTCAL
59	Co	1	72	19.060	ppb	#REF!	2.43	2000.00	>RL
60	Ni	1	72	28.320	ppb	#REF!	3.71	2000.00	>RL
63	Cu	1	72	10.960	ppb	#REF!	3.87	2000.00	>RL
66	Zn	1	72	135.000	ppb	#REF!	2.74	2000.00	>RL
75	As	1	72	22.570	ppb	#REF!	2.81	2000.00	>RL
78	Se	1	72	13.250	ppb	#REF!	9.91	2000.00	>RL
88	Sr	2	115	1016.000	ppb	#REF!	1.70	2000.00	>RL
95	Mo	2	115	1.415	ppb	#REF!	7.03	2000.00	ND
107	Ag	2	115	0.121	ppb	#REF!	8.53	500.00	ND
111	Cd	2	115	0.963	ppb	#REF!	0.63	2000.00	J
118	Sn	2	115	5.114	ppb	#REF!	1.01	2000.00	ND
121	Sb	2	115	0.389	ppb	#REF!	6.70	500.00	ND
137	Ba	2	115	1650.000	ppb	#REF!	1.38	2000.00	>RL
205	Tl	2	209	0.384	ppb	#REF!	4.79	2000.00	ND
208	Pb	2	209	29.680	ppb	#REF!	1.88	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-8473.31	1.45	36.77	-23044.3	70 - 120	ISFail
45	Sc	1	129446.59	1.47	157844.06	82.0	70 - 120	
45	Sc	2	4779580.00	2.37	5827273.50	82.0	70 - 120	
72	Ge	1	67761.92	1.46	86621.49	78.2	70 - 120	
115	In	2	5047971.50	0.32	6276207.00	80.4	70 - 120	
209	Bi	2	3340751.30	1.26	4446753.50	75.1	70 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\103SMPL.D\103SMPL.D#

Date Acquired:	Aug 10 2016 09:29 pm	Sample Name:	**1607317-17A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD1
Operator:	KL	Bench Diln:	5
Last Cal. Update:	Aug 10 2016 01:05 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	80.970	ppb	#REF!	1.40	2000.00	>RL
9	Be	2	45	2.957	ppb	#REF!	3.06	2000.00	>RL
11	B	2	45	127.600	ppb	#REF!	1.41	2000.00	>RL
23	Na	1	45	7894.000	ppb	#REF!	2.61	25000.00	>RL
24	Mg	1	45	16080.000	ppb	#REF!	2.29	25000.00	>RL
27	Al	1	45	57970.000	ppb	#REF!	3.10	10000.00	OUTCAL
39	K	1	45	21270.000	ppb	#REF!	0.82	25000.00	>RL
44	Ca	2	45	131900.000	ppb	#REF!	2.78	25000.00	OUTCAL
47	Ti	1	45	234.600	ppb	#REF!	1.31	2000.00	>RL
51	V	1	45	80.270	ppb	#REF!	2.37	2000.00	>RL
52	Cr	1	45	69.150	ppb	#REF!	3.66	2000.00	>RL
55	Mn	1	45	1176.000	ppb	#REF!	3.07	2000.00	>RL
56	Fe	1	72	90230.000	ppb	#REF!	2.52	10000.00	OUTCAL
59	Co	1	72	27.240	ppb	#REF!	1.88	2000.00	>RL
60	Ni	1	72	33.960	ppb	#REF!	2.96	2000.00	>RL
63	Cu	1	72	5.061	ppb	#REF!	4.53	2000.00	J
66	Zn	1	72	182.700	ppb	#REF!	2.45	2000.00	>RL
75	As	1	72	19.720	ppb	#REF!	2.94	2000.00	>RL
78	Se	1	72	14.820	ppb	#REF!	3.34	2000.00	>RL
88	Sr	2	115	750.500	ppb	#REF!	1.59	2000.00	>RL
95	Mo	2	115	1.541	ppb	#REF!	2.34	2000.00	ND
107	Ag	2	115	0.137	ppb	#REF!	3.13	500.00	ND
111	Cd	2	115	1.091	ppb	#REF!	13.80	2000.00	J
118	Sn	2	115	5.892	ppb	#REF!	0.76	2000.00	ND
121	Sb	2	115	0.086	ppb	#REF!	25.35	500.00	ND
137	Ba	2	115	144.400	ppb	#REF!	2.11	2000.00	>RL
205	Tl	2	209	0.305	ppb	#REF!	6.66	2000.00	ND
208	Pb	2	209	17.760	ppb	#REF!	1.44	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-12093.04	3.27	36.77	-32888.7	70 - 120	ISFail
45	Sc	1	135144.66	0.62	157844.06	85.6	70 - 120	
45	Sc	2	4899140.50	1.92	5827273.50	84.1	70 - 120	
72	Ge	1	72237.24	0.15	86621.49	83.4	70 - 120	
115	In	2	4802326.00	0.72	6276207.00	76.5	70 - 120	
209	Bi	2	3286306.80	1.03	4446753.50	73.9	70 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\104SMPL.D\104SMPL.D#

Date Acquired:	Aug 10 2016 09:35 pm	Sample Name:	**1607317-18A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD1
Operator:	KL	Bench Diln:	5
Last Cal. Update:	Aug 10 2016 01:05 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	63.220	ppb	#REF!	1.72	2000.00	>RL
9	Be	2	45	2.583	ppb	#REF!	2.18	2000.00	>RL
11	B	2	45	60.510	ppb	#REF!	1.99	2000.00	>RL
23	Na	1	45	3802.000	ppb	#REF!	1.04	25000.00	>RL
24	Mg	1	45	15250.000	ppb	#REF!	2.75	25000.00	>RL
27	Al	1	45	85610.000	ppb	#REF!	3.99	10000.00	OUTCAL
39	K	1	45	18920.000	ppb	#REF!	2.64	25000.00	>RL
44	Ca	2	45	45270.000	ppb	#REF!	1.72	25000.00	OUTCAL
47	Ti	1	45	200.300	ppb	#REF!	3.30	2000.00	>RL
51	V	1	45	112.100	ppb	#REF!	2.44	2000.00	>RL
52	Cr	1	45	66.450	ppb	#REF!	2.88	2000.00	>RL
55	Mn	1	45	625.000	ppb	#REF!	2.57	2000.00	>RL
56	Fe	1	72	74520.000	ppb	#REF!	2.50	10000.00	OUTCAL
59	Co	1	72	24.960	ppb	#REF!	1.99	2000.00	>RL
60	Ni	1	72	40.390	ppb	#REF!	3.19	2000.00	>RL
63	Cu	1	72	55.120	ppb	#REF!	1.79	2000.00	>RL
66	Zn	1	72	223.300	ppb	#REF!	1.74	2000.00	>RL
75	As	1	72	33.520	ppb	#REF!	2.50	2000.00	>RL
78	Se	1	72	14.450	ppb	#REF!	3.05	2000.00	>RL
88	Sr	2	115	331.900	ppb	#REF!	1.54	2000.00	>RL
95	Mo	2	115	1.602	ppb	#REF!	3.92	2000.00	ND
107	Ag	2	115	0.199	ppb	#REF!	9.94	500.00	ND
111	Cd	2	115	1.260	ppb	#REF!	7.11	2000.00	>RL
118	Sn	2	115	5.856	ppb	#REF!	2.42	2000.00	ND
121	Sb	2	115	3.322	ppb	#REF!	1.51	500.00	J
137	Ba	2	115	470.900	ppb	#REF!	0.74	2000.00	>RL
205	Tl	2	209	0.669	ppb	#REF!	4.04	2000.00	ND
208	Pb	2	209	185.100	ppb	#REF!	0.91	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-9504.00	2.79	36.77	-25847.4	70 - 120	ISFail
45	Sc	1	136343.22	0.73	157844.06	86.4	70 - 120	
45	Sc	2	4800365.00	2.24	5827273.50	82.4	70 - 120	
72	Ge	1	71696.10	0.24	86621.49	82.8	70 - 120	
115	In	2	4637901.00	0.72	6276207.00	73.9	70 - 120	
209	Bi	2	3268330.80	0.47	4446753.50	73.5	70 - 120	

PDS QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\105_PDS.D\105_PDS.D#

Date Acquired:	Aug 10 2016 09:41 pm	Sample Name:	**1607317-09A PDS**
Acq. Method:	DHL_3Fe.M	Misc Info:	PDS ICPMS_TSDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	Aug 10 2016 01:05 pm	Auto Diln:	Undiluted
Instrument:	ICPMS3	Total Diln:	5.00

QC Elements

Element				Conc.		RSD(%)	Ref Conc	Spike	Range	Rec(%)	Flag
7	Li	2	45	233.40	ppb	2.05	-39481.89	200	75-125	######	Fail
9	Be	2	45	177.00	ppb	1.78	2.33	200	75-125	87.3	
11	B	2	45	209.20	ppb	1.29	52.50	200	75-125	78.4	
23	Na	1	45	8573.00	ppb	1.49	3282.00	5000	75-125	105.8	
24	Mg	1	45	17830.00	ppb	2.78	12820.00	5000	75-125	100.2	
27	Al	1	45	75230.00	ppb	3.43	70500.00	5000	75-125	94.6	
39	K	1	45	20400.00	ppb	1.39	14640.00	5000	75-125	115.2	
44	Ca	2	45	59120.00	ppb	2.50	53410.00	5000	75-125	114.2	
47	Ti	1	45	409.70	ppb	3.19	205.30	200	75-125	102.2	
51	V	1	45	290.10	ppb	2.80	87.36	200	75-125	101.4	
52	Cr	1	45	253.20	ppb	2.86	51.47	200	75-125	100.9	
55	Mn	1	45	966.00	ppb	2.23	749.90	200	75-125	108.0	
56	Fe	1	72	63660.00	ppb	2.46	57960.00	5000	75-125	114.0	
59	Co	1	72	219.20	ppb	2.41	22.61	200	75-125	98.3	
60	Ni	1	72	221.30	ppb	2.34	34.39	200	75-125	93.5	
63	Cu	1	72	213.30	ppb	2.16	28.30	200	75-125	92.5	
66	Zn	1	72	445.60	ppb	2.86	253.50	200	75-125	96.1	
75	As	1	72	229.30	ppb	2.29	35.35	200	75-125	97.0	
78	Se	1	72	197.00	ppb	1.49	11.78	200	75-125	92.6	
88	Sr	2	115	508.70	ppb	2.01	299.20	200	75-125	104.7	
95	Mo	2	115	200.90	ppb	1.65	1.73	200	75-125	99.6	
107	Ag	2	115	186.70	ppb	1.32	0.32	200	75-125	93.2	
111	Cd	2	115	185.30	ppb	1.08	1.31	200	75-125	92.0	
118	Sn	2	115	204.90	ppb	1.02	5.73	200	75-125	99.6	
121	Sb	2	115	201.70	ppb	0.55	3.39	200	75-125	99.2	
137	Ba	2	115	643.30	ppb	0.67	440.60	200	75-125	101.3	
205	Tl	2	209	203.90	ppb	0.62	0.68	200	75-125	101.6	
208	Pb	2	209	334.80	ppb	0.99	130.90	200	75-125	102.0	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-39481.89	2.97	36.77	-107376.4	70 - 120	ISFail
45	Sc	1	131038.41	0.14	157844.06	83.0	70 - 120	
45	Sc	2	4702444.50	2.42	5827273.50	80.7	70 - 120	
72	Ge	1	70037.72	0.06	86621.49	80.9	70 - 120	
115	In	2	4599213.50	0.50	6276207.00	73.3	70 - 120	
209	Bi	2	3272732.80	1.01	4446753.50	73.6	70 - 120	

MS/MSD QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\106_MS.D\106_MS.D#

Date Acquired:	Aug 10 2016 09:46 pm	Sample Name:	**1607317-09A MS**
Acq. Method:	DHL_3Fe.M	Misc Info:	MS ICPMS_TSDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	Aug 10 2016 01:05 pm	Auto Diln:	Undiluted
Instrument:	ICPMS3	Total Diln:	5.00

QC Elements

Element				Conc.		RSD(%)	Ref Conc	Spike	Range	Rec(%)	Flag
7	Li	2	45	243.90	ppb	1.50	########	200	80-120	######	Fail
9	Be	2	45	176.80	ppb	1.27	2.33	200	80-120	87.2	
11	B	2	45	218.30	ppb	0.93	52.50	200	80-120	82.9	
23	Na	1	45	8843.00	ppb	2.11	3282.00	5000	80-120	111.2	
24	Mg	1	45	19800.00	ppb	3.29	12820.00	5000	80-120	139.6	Fail
27	Al	1	45	88960.00	ppb	3.71	70500.00	1000	80-120	1846.0	Fail
39	K	1	45	23550.00	ppb	0.69	14640.00	5000	80-120	178.2	Fail
44	Ca	2	45	64700.00	ppb	1.61	53410.00	5000	80-120	225.8	Fail
47	Ti	1	45	459.90	ppb	3.38	205.30	200	80-120	127.3	Fail
51	V	1	45	320.50	ppb	3.08	87.36	200	80-120	116.6	
52	Cr	1	45	255.50	ppb	3.40	51.47	200	80-120	102.0	
55	Mn	1	45	1282.00	ppb	2.99	749.90	200	80-120	266.0	Fail
56	Fe	1	72	70950.00	ppb	2.74	57960.00	1000	80-120	1299.0	Fail
59	Co	1	72	226.60	ppb	2.43	22.61	200	80-120	102.0	
60	Ni	1	72	224.10	ppb	2.87	34.39	200	80-120	94.9	
63	Cu	1	72	216.00	ppb	2.82	28.30	200	80-120	93.9	
66	Zn	1	72	477.90	ppb	2.26	253.50	200	80-120	112.2	
75	As	1	72	236.40	ppb	2.28	35.35	200	80-120	100.5	
78	Se	1	72	197.50	ppb	3.06	11.78	200	80-120	92.9	
88	Sr	2	115	560.60	ppb	2.16	299.20	200	80-120	130.7	Fail
95	Mo	2	115	193.70	ppb	1.99	1.73	200	80-120	96.0	
107	Ag	2	115	186.80	ppb	1.84	0.32	200	80-120	93.2	
111	Cd	2	115	189.70	ppb	1.48	1.31	200	80-120	94.2	
118	Sn	2	115	208.10	ppb	1.02	5.73	200	80-120	101.2	
121	Sb	2	115	73.76	ppb	0.56	3.39	200	80-120	35.2	Fail
137	Ba	2	115	817.50	ppb	0.91	440.60	200	80-120	188.4	Fail
205	Tl	2	209	211.20	ppb	1.43	0.68	200	80-120	105.3	
208	Pb	2	209	387.50	ppb	0.68	130.90	200	80-120	128.3	Fail

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	-58590.41	1.13	36.77	########	70	-	120	ISFail
45	Sc	1	132937.44	0.58	157844.06	84.2	70	-	120	
45	Sc	2	4618868.50	2.37	5827273.50	79.3	70	-	120	
72	Ge	1	70291.84	0.45	86621.49	81.1	70	-	120	
115	In	2	4452912.50	0.67	6276207.00	70.9	70	-	120	
209	Bi	2	3186888.30	1.02	4446753.50	71.7	70	-	120	

MS/MSD QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\107_MS.D\107_MS.D#

Date Acquired:	Aug 10 2016 09:52 pm	Sample Name:	**1607317-09A MSD**
Acq. Method:	DHL_3Fe.M	Misc Info:	MSD ICPMS_TSDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	Aug 10 2016 01:05 pm	Auto Diln:	Undiluted
Instrument:	ICPMS3	Total Diln:	5.00

QC Elements

Element				Conc.		RSD(%)	Ref Conc	Spike	Range	Rec(%)	Flag
7	Li	2	45	242.60	ppb	1.41	########	200	80-120	######	Fail
9	Be	2	45	177.60	ppb	0.63	2.33	200	80-120	87.6	
11	B	2	45	222.30	ppb	0.37	52.50	200	80-120	84.9	
23	Na	1	45	8820.00	ppb	2.32	3282.00	5000	80-120	110.8	
24	Mg	1	45	19640.00	ppb	3.81	12820.00	5000	80-120	136.4	Fail
27	Al	1	45	85510.00	ppb	3.58	70500.00	1000	80-120	1501.0	Fail
39	K	1	45	23220.00	ppb	2.64	14640.00	5000	80-120	171.6	Fail
44	Ca	2	45	60660.00	ppb	1.38	53410.00	5000	80-120	145.0	Fail
47	Ti	1	45	467.30	ppb	3.36	205.30	200	80-120	131.0	Fail
51	V	1	45	303.90	ppb	3.05	87.36	200	80-120	108.3	
52	Cr	1	45	260.70	ppb	3.06	51.47	200	80-120	104.6	
55	Mn	1	45	974.30	ppb	2.50	749.90	200	80-120	112.2	
56	Fe	1	72	68320.00	ppb	3.26	57960.00	1000	80-120	1036.0	Fail
59	Co	1	72	233.30	ppb	3.22	22.61	200	80-120	105.3	
60	Ni	1	72	231.60	ppb	2.75	34.39	200	80-120	98.6	
63	Cu	1	72	222.00	ppb	2.03	28.30	200	80-120	96.9	
66	Zn	1	72	479.90	ppb	2.19	253.50	200	80-120	113.2	
75	As	1	72	232.70	ppb	1.57	35.35	200	80-120	98.7	
78	Se	1	72	199.00	ppb	2.03	11.78	200	80-120	93.6	
88	Sr	2	115	560.10	ppb	1.24	299.20	200	80-120	130.4	Fail
95	Mo	2	115	199.00	ppb	1.15	1.73	200	80-120	98.6	
107	Ag	2	115	191.00	ppb	1.08	0.32	200	80-120	95.3	
111	Cd	2	115	193.70	ppb	1.29	1.31	200	80-120	96.2	
118	Sn	2	115	213.10	ppb	0.59	5.73	200	80-120	103.7	
121	Sb	2	115	71.86	ppb	0.49	3.39	200	80-120	34.2	Fail
137	Ba	2	115	721.00	ppb	0.42	440.60	200	80-120	140.2	Fail
205	Tl	2	209	215.30	ppb	1.47	0.68	200	80-120	107.3	
208	Pb	2	209	376.60	ppb	0.66	130.90	200	80-120	122.9	Fail

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	-57818.87	1.86	36.77	########	70	-	120	ISFail
45	Sc	1	131948.41	0.29	157844.06	83.6	70	-	120	
45	Sc	2	4587145.50	0.91	5827273.50	78.7	70	-	120	
72	Ge	1	69201.56	0.18	86621.49	79.9	70	-	120	
115	In	2	4275379.50	0.64	6276207.00	68.1	70	-	120	ISFail
209	Bi	2	3090457.80	0.08	4446753.50	69.5	70	-	120	ISFail

CCV QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\108CCV1.D\108CCV1.D#

Date Acquired:	Aug 10 2016 09:58 pm	Sample Name:	**CCV4-160810**
Acq. Method:	DHL_3Fe.M	Misc Info:	CCV ICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 10 2016 01:05 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	200.10	ppb	1.14	200.00	90 -	110	100.1	
9	Be	2	45	191.10	ppb	0.56	200.00	90 -	110	95.6	
11	B	2	45	177.00	ppb	0.87	200.00	90 -	110	88.5	Fail
23	Na	1	45	5516.00	ppb	2.24	5000.00	90 -	110	110.3	Fail
24	Mg	1	45	5244.00	ppb	3.70	5000.00	90 -	110	104.9	
27	Al	1	45	5306.00	ppb	4.58	5000.00	90 -	110	106.1	
39	K	1	45	5330.00	ppb	1.65	5000.00	90 -	110	106.6	
44	Ca	2	45	5572.00	ppb	1.78	5000.00	90 -	110	111.4	Fail
47	Ti	1	45	197.40	ppb	6.24	200.00	90 -	110	98.7	
51	V	1	45	204.40	ppb	3.87	200.00	90 -	110	102.2	
52	Cr	1	45	205.00	ppb	3.69	200.00	90 -	110	102.5	
55	Mn	1	45	209.90	ppb	3.57	200.00	90 -	110	105.0	
56	Fe	1	72	5272.00	ppb	4.55	5000.00	90 -	110	105.4	
59	Co	1	72	207.00	ppb	3.41	200.00	90 -	110	103.5	
60	Ni	1	72	203.00	ppb	3.35	200.00	90 -	110	101.5	
63	Cu	1	72	206.80	ppb	3.26	200.00	90 -	110	103.4	
66	Zn	1	72	219.50	ppb	6.56	200.00	90 -	110	109.8	
75	As	1	72	209.40	ppb	2.92	200.00	90 -	110	104.7	
78	Se	1	72	209.90	ppb	3.49	200.00	90 -	110	105.0	
88	Sr	2	115	229.40	ppb	0.84	200.00	90 -	110	114.7	Fail
95	Mo	2	115	216.80	ppb	1.28	200.00	90 -	110	108.4	
107	Ag	2	115	204.40	ppb	1.08	200.00	90 -	110	102.2	
111	Cd	2	115	203.90	ppb	1.45	200.00	90 -	110	102.0	
118	Sn	2	115	204.10	ppb	0.64	200.00	90 -	110	102.1	
121	Sb	2	115	204.50	ppb	0.34	200.00	90 -	110	102.3	
137	Ba	2	115	203.60	ppb	0.32	200.00	90 -	110	101.8	
205	Tl	2	209	211.30	ppb	0.58	200.00	90 -	110	105.7	
208	Pb	2	209	199.20	ppb	0.48	200.00	90 -	110	99.6	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	-56569.73	2.13	36.77	-153849.2	70 -	120		ISFail
45	Sc	1	131748.33	0.66	157844.06	83.5	70 -	120		
45	Sc	2	4851440.50	1.46	5827273.50	83.3	70 -	120		
72	Ge	1	70997.86	0.64	86621.49	82.0	70 -	120		
115	In	2	4482388.00	0.80	6276207.00	71.4	70 -	120		
209	Bi	2	3345980.50	0.34	4446753.50	75.2	70 -	120		

CCV QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\110LCVL.D\110LCVL.D#

Date Acquired:	Aug 10 2016 10:10 pm	Sample Name:	**LCVL4-160810**
Acq. Method:	DHL_3Fe.M	Misc Info:	LCVLICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 10 2016 01:05 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	10.10	ppb	0.73	10.00	70 -	130	101.0	
9	Be	2	45	0.99	ppb	8.05	1.00	70 -	130	99.0	
11	B	2	45	19.25	ppb	1.68	20.00	70 -	130	96.3	
23	Na	1	45	95.50	ppb	0.92	100.00	70 -	130	95.5	
24	Mg	1	45	108.50	ppb	2.32	100.00	70 -	130	108.5	
27	Al	1	45	119.60	ppb	2.45	100.00	70 -	130	119.6	
39	K	1	45	111.90	ppb	2.64	100.00	70 -	130	111.9	
44	Ca	2	45	114.20	ppb	8.57	100.00	70 -	130	114.2	
47	Ti	1	45	5.12	ppb	6.10	5.00	70 -	130	102.4	
51	V	1	45	1.09	ppb	3.34	1.00	70 -	130	109.2	
52	Cr	1	45	5.21	ppb	4.31	5.00	70 -	130	104.2	
55	Mn	1	45	5.32	ppb	2.24	5.00	70 -	130	106.4	
56	Fe	1	72	117.50	ppb	2.56	100.00	70 -	130	117.5	
59	Co	1	72	5.14	ppb	1.56	5.00	70 -	130	102.8	
60	Ni	1	72	5.15	ppb	2.82	5.00	70 -	130	103.0	
63	Cu	1	72	5.13	ppb	1.13	5.00	70 -	130	102.6	
66	Zn	1	72	5.59	ppb	6.43	5.00	70 -	130	111.8	
75	As	1	72	5.17	ppb	1.71	5.00	70 -	130	103.3	
78	Se	1	72	5.64	ppb	3.90	5.00	70 -	130	112.7	
88	Sr	2	115	5.64	ppb	1.80	5.00	70 -	130	112.7	
95	Mo	2	115	5.35	ppb	3.92	5.00	70 -	130	107.0	
107	Ag	2	115	2.21	ppb	2.44	2.00	70 -	130	110.7	
111	Cd	2	115	1.01	ppb	5.24	1.00	70 -	130	100.6	
118	Sn	2	115	5.23	ppb	0.62	5.00	70 -	130	104.5	
121	Sb	2	115	2.16	ppb	6.21	2.00	70 -	130	108.2	
137	Ba	2	115	5.15	ppb	2.39	5.00	70 -	130	103.1	
205	Tl	2	209	1.16	ppb	4.06	1.00	70 -	130	116.0	
208	Pb	2	209	1.13	ppb	3.97	1.00	70 -	130	112.8	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	-1665.19	1.92	36.77	-4528.7	70 -	120		ISFail
45	Sc	1	137764.58	0.23	157844.06	87.3	70 -	120		
45	Sc	2	4780224.00	2.24	5827273.50	82.0	70 -	120		
72	Ge	1	75130.02	0.59	86621.49	86.7	70 -	120		
115	In	2	4390816.00	1.02	6276207.00	70.0	70 -	120		ISFail
209	Bi	2	3321052.50	0.99	4446753.50	74.7	70 -	120		

CCB QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\111_CCB.D\111_CCB.D#

Date Acquired:	Aug 10 2016 10:17 pm	Sample Name:	**CCB4-160810**
Acq. Method:	DHL_3Fe.M	Misc Info:	CCB ICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 10 2016 01:05 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	MDL S	MDL Aq	Flag
7	Li	2	45	0.164	ppb	8.69	2.00	2.00	
9	Be	2	45	0.037	ppb	3.24	0.40	0.30	
11	B	2	45	2.157	ppb	3.64	10.00	10.00	
23	Na	1	45	-1.930	ppb	3.28	50.00	#####	
24	Mg	1	45	4.110	ppb	10.98	50.00	#####	
27	Al	1	45	14.430	ppb	3.29	50.00	10.00	FailAq
39	K	1	45	5.803	ppb	1.18	50.00	#####	
44	Ca	2	45	35.540	ppb	10.10	50.00	#####	
47	Ti	1	45	0.026	ppb	49.50	4.00	3.00	
51	V	1	45	0.037	ppb	3.23	4.00	3.00	
52	Cr	1	45	0.045	ppb	7.13	2.00	2.00	
55	Mn	1	45	0.194	ppb	8.10	2.00	3.00	
56	Fe	1	72	6.910	ppb	16.03	50.00	30.00	
59	Co	1	72	0.054	ppb	8.15	2.00	3.00	
60	Ni	1	72	0.140	ppb	21.11	2.00	3.00	
63	Cu	1	72	0.110	ppb	5.52	2.00	2.00	
66	Zn	1	72	1.683	ppb	7.16	4.00	2.00	
75	As	1	72	-0.095	ppb	1.27	2.00	2.00	
78	Se	1	72	0.194	ppb	30.31	0.60	2.00	
88	Sr	2	115	0.195	ppb	8.97	4.00	3.00	
95	Mo	2	115	0.089	ppb	19.47	2.00	2.00	
107	Ag	2	115	0.047	ppb	16.46	0.40	1.00	
111	Cd	2	115	0.039	ppb	51.20	0.40	0.30	
118	Sn	2	115	0.123	ppb	8.38	20.00	3.00	
121	Sb	2	115	0.078	ppb	16.37	2.00	0.80	
137	Ba	2	115	0.145	ppb	19.18	2.00	3.00	
205	Tl	2	209	0.152	ppb	5.16	2.00	0.50	
208	Pb	2	209	0.090	ppb	16.51	0.40	0.30	

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	RHigh	-25.45	25.01	36.77	-69.2	70 - 120	ISFail
45	Sc	1		131554.20	1.30	157844.06	83.3	70 - 120	
45	Sc	2		4746576.00	1.40	5827273.50	81.5	70 - 120	
72	Ge	1		72017.73	1.52	86621.49	83.1	70 - 120	
115	In	2		4499025.50	0.66	6276207.00	71.7	70 - 120	
209	Bi	2		3373030.30	0.33	4446753.50	75.9	70 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\112SMPL.D\112SMPL.D#

Date Acquired:	Aug 10 2016 10:23 pm	Sample Name:	**1607317-19A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD1
Operator:	KL	Bench Diln:	5
Last Cal. Update:	Aug 10 2016 01:05 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	68.680	ppb	#REF!	1.15	2000.00	>RL
9	Be	2	45	2.796	ppb	#REF!	6.00	2000.00	>RL
11	B	2	45	71.900	ppb	#REF!	0.05	2000.00	>RL
23	Na	1	45	10080.000	ppb	#REF!	1.91	25000.00	>RL
24	Mg	1	45	17610.000	ppb	#REF!	2.86	25000.00	>RL
27	Al	1	45	86980.000	ppb	#REF!	3.22	10000.00	OUTCAL
39	K	1	45	16940.000	ppb	#REF!	1.08	25000.00	>RL
44	Ca	2	45	147600.000	ppb	#REF!	1.94	25000.00	OUTCAL
47	Ti	1	45	220.500	ppb	#REF!	5.92	2000.00	>RL
51	V	1	45	131.000	ppb	#REF!	3.45	2000.00	>RL
52	Cr	1	45	65.730	ppb	#REF!	3.15	2000.00	>RL
55	Mn	1	45	629.900	ppb	#REF!	3.06	2000.00	>RL
56	Fe	1	72	79300.000	ppb	#REF!	3.29	10000.00	OUTCAL
59	Co	1	72	26.270	ppb	#REF!	2.72	2000.00	>RL
60	Ni	1	72	41.280	ppb	#REF!	2.29	2000.00	>RL
63	Cu	1	72	19.410	ppb	#REF!	2.27	2000.00	>RL
66	Zn	1	72	189.400	ppb	#REF!	3.88	2000.00	>RL
75	As	1	72	25.830	ppb	#REF!	2.20	2000.00	>RL
78	Se	1	72	14.160	ppb	#REF!	2.01	2000.00	>RL
88	Sr	2	115	476.500	ppb	#REF!	1.96	2000.00	>RL
95	Mo	2	115	1.312	ppb	#REF!	5.08	2000.00	ND
107	Ag	2	115	0.175	ppb	#REF!	3.57	500.00	ND
111	Cd	2	115	1.334	ppb	#REF!	1.59	2000.00	>RL
118	Sn	2	115	5.676	ppb	#REF!	1.46	2000.00	ND
121	Sb	2	115	0.450	ppb	#REF!	0.47	500.00	ND
137	Ba	2	115	549.800	ppb	#REF!	0.86	2000.00	>RL
205	Tl	2	209	0.717	ppb	#REF!	4.55	2000.00	ND
208	Pb	2	209	39.150	ppb	#REF!	0.95	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-10561.87	0.65	36.77	-28724.5	70 - 120	ISFail
45	Sc	1	137031.70	1.51	157844.06	86.8	70 - 120	
45	Sc	2	4855398.00	1.82	5827273.50	83.3	70 - 120	
72	Ge	1	72033.87	0.90	86621.49	83.2	70 - 120	
115	In	2	4873680.00	0.70	6276207.00	77.7	70 - 120	
209	Bi	2	3371885.80	1.21	4446753.50	75.8	70 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\113SMPL.D\113SMPL.D#

Date Acquired:	Aug 10 2016 10:29 pm	Sample Name:	**1607317-20A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD1
Operator:	KL	Bench Diln:	5
Last Cal. Update:	Aug 10 2016 01:05 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	56.490	ppb	#REF!	1.19	2000.00	>RL
9	Be	2	45	2.293	ppb	#REF!	2.42	2000.00	>RL
11	B	2	45	96.600	ppb	#REF!	1.43	2000.00	>RL
23	Na	1	45	6438.000	ppb	#REF!	1.44	25000.00	>RL
24	Mg	1	45	13590.000	ppb	#REF!	2.54	25000.00	>RL
27	Al	1	45	48390.000	ppb	#REF!	3.27	10000.00	OUTCAL
39	K	1	45	16020.000	ppb	#REF!	2.51	25000.00	>RL
44	Ca	2	45	221600.000	ppb	#REF!	1.44	25000.00	OUTCAL
47	Ti	1	45	182.500	ppb	#REF!	3.05	2000.00	>RL
51	V	1	45	75.110	ppb	#REF!	3.04	2000.00	>RL
52	Cr	1	45	52.430	ppb	#REF!	3.45	2000.00	>RL
55	Mn	1	45	1768.000	ppb	#REF!	3.40	2000.00	>RL
56	Fe	1	72	72080.000	ppb	#REF!	3.31	10000.00	OUTCAL
59	Co	1	72	19.990	ppb	#REF!	3.44	2000.00	>RL
60	Ni	1	72	30.590	ppb	#REF!	2.90	2000.00	>RL
63	Cu	1	72	7.393	ppb	#REF!	3.00	2000.00	J
66	Zn	1	72	146.400	ppb	#REF!	2.37	2000.00	>RL
75	As	1	72	20.530	ppb	#REF!	2.74	2000.00	>RL
78	Se	1	72	13.470	ppb	#REF!	3.05	2000.00	>RL
88	Sr	2	115	987.800	ppb	#REF!	1.26	2000.00	>RL
95	Mo	2	115	2.735	ppb	#REF!	3.33	2000.00	J
107	Ag	2	115	0.107	ppb	#REF!	3.04	500.00	ND
111	Cd	2	115	0.986	ppb	#REF!	6.75	2000.00	J
118	Sn	2	115	5.568	ppb	#REF!	1.44	2000.00	ND
121	Sb	2	115	0.270	ppb	#REF!	4.33	500.00	ND
137	Ba	2	115	442.800	ppb	#REF!	0.29	2000.00	>RL
205	Tl	2	209	0.380	ppb	#REF!	6.30	2000.00	ND
208	Pb	2	209	21.260	ppb	#REF!	1.09	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-8214.68	2.31	36.77	-22341.0	70 - 120	ISFail
45	Sc	1	130015.16	0.76	157844.06	82.4	70 - 120	
45	Sc	2	4580645.50	1.73	5827273.50	78.6	70 - 120	
72	Ge	1	68041.20	1.18	86621.49	78.6	70 - 120	
115	In	2	4489133.00	0.43	6276207.00	71.5	70 - 120	
209	Bi	2	3101607.80	0.57	4446753.50	69.7	70 - 120	ISFail

Sample QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\114SMPL.D\114SMPL.D#

Date Acquired:	Aug 10 2016 10:34 pm	Sample Name:	**1607317-21A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD1
Operator:	KL	Bench Diln:	5
Last Cal. Update:	Aug 10 2016 01:05 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	73.350	ppb	#REF!	1.58	2000.00	>RL
9	Be	2	45	2.875	ppb	#REF!	1.59	2000.00	>RL
11	B	2	45	120.300	ppb	#REF!	0.95	2000.00	>RL
23	Na	1	45	7031.000	ppb	#REF!	1.06	25000.00	>RL
24	Mg	1	45	15900.000	ppb	#REF!	2.82	25000.00	>RL
27	Al	1	45	58970.000	ppb	#REF!	4.28	10000.00	OUTCAL
39	K	1	45	21840.000	ppb	#REF!	1.28	25000.00	>RL
44	Ca	2	45	37230.000	ppb	#REF!	3.52	25000.00	OUTCAL
47	Ti	1	45	222.300	ppb	#REF!	3.57	2000.00	>RL
51	V	1	45	79.040	ppb	#REF!	2.88	2000.00	>RL
52	Cr	1	45	70.030	ppb	#REF!	2.98	2000.00	>RL
55	Mn	1	45	360.900	ppb	#REF!	2.53	2000.00	>RL
56	Fe	1	72	95150.000	ppb	#REF!	3.25	10000.00	OUTCAL
59	Co	1	72	27.600	ppb	#REF!	3.14	2000.00	>RL
60	Ni	1	72	36.400	ppb	#REF!	2.93	2000.00	>RL
63	Cu	1	72	5.392	ppb	#REF!	3.50	2000.00	J
66	Zn	1	72	197.500	ppb	#REF!	2.08	2000.00	>RL
75	As	1	72	20.070	ppb	#REF!	2.25	2000.00	>RL
78	Se	1	72	15.960	ppb	#REF!	3.45	2000.00	>RL
88	Sr	2	115	321.900	ppb	#REF!	2.14	2000.00	>RL
95	Mo	2	115	1.383	ppb	#REF!	2.21	2000.00	ND
107	Ag	2	115	0.134	ppb	#REF!	3.78	500.00	ND
111	Cd	2	115	0.998	ppb	#REF!	8.76	2000.00	J
118	Sn	2	115	6.022	ppb	#REF!	3.38	2000.00	ND
121	Sb	2	115	0.102	ppb	#REF!	14.57	500.00	ND
137	Ba	2	115	174.100	ppb	#REF!	0.96	2000.00	>RL
205	Tl	2	209	0.364	ppb	#REF!	3.54	2000.00	ND
208	Pb	2	209	19.690	ppb	#REF!	1.33	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-11666.38	2.52	36.77	-31728.3	70 - 120	ISFail
45	Sc	1	138256.28	0.14	157844.06	87.6	70 - 120	
45	Sc	2	4806299.00	2.04	5827273.50	82.5	70 - 120	
72	Ge	1	72860.65	0.56	86621.49	84.1	70 - 120	
115	In	2	4756860.50	0.19	6276207.00	75.8	70 - 120	
209	Bi	2	3320519.00	0.17	4446753.50	74.7	70 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\115SMPL.D\115SMPL.D#

Date Acquired:	Aug 10 2016 10:40 pm	Sample Name:	**1607317-22A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD1
Operator:	KL	Bench Diln:	5
Last Cal. Update:	Aug 10 2016 01:05 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	60.980	ppb	#REF!	1.19	2000.00	>RL
9	Be	2	45	2.636	ppb	#REF!	0.59	2000.00	>RL
11	B	2	45	63.160	ppb	#REF!	1.06	2000.00	>RL
23	Na	1	45	4032.000	ppb	#REF!	2.61	25000.00	>RL
24	Mg	1	45	16030.000	ppb	#REF!	3.15	25000.00	>RL
27	Al	1	45	91750.000	ppb	#REF!	4.55	10000.00	OUTCAL
39	K	1	45	19580.000	ppb	#REF!	2.24	25000.00	>RL
44	Ca	2	45	64600.000	ppb	#REF!	1.91	25000.00	OUTCAL
47	Ti	1	45	234.600	ppb	#REF!	4.75	2000.00	>RL
51	V	1	45	118.900	ppb	#REF!	3.24	2000.00	>RL
52	Cr	1	45	69.440	ppb	#REF!	3.60	2000.00	>RL
55	Mn	1	45	645.500	ppb	#REF!	3.44	2000.00	>RL
56	Fe	1	72	76940.000	ppb	#REF!	3.70	10000.00	OUTCAL
59	Co	1	72	26.280	ppb	#REF!	3.68	2000.00	>RL
60	Ni	1	72	40.880	ppb	#REF!	2.17	2000.00	>RL
63	Cu	1	72	61.580	ppb	#REF!	2.57	2000.00	>RL
66	Zn	1	72	219.600	ppb	#REF!	3.05	2000.00	>RL
75	As	1	72	32.250	ppb	#REF!	2.37	2000.00	>RL
78	Se	1	72	14.600	ppb	#REF!	5.29	2000.00	>RL
88	Sr	2	115	402.200	ppb	#REF!	1.18	2000.00	>RL
95	Mo	2	115	1.675	ppb	#REF!	3.59	2000.00	ND
107	Ag	2	115	0.224	ppb	#REF!	7.07	500.00	ND
111	Cd	2	115	1.309	ppb	#REF!	11.08	2000.00	>RL
118	Sn	2	115	5.996	ppb	#REF!	1.99	2000.00	ND
121	Sb	2	115	3.523	ppb	#REF!	2.80	500.00	J
137	Ba	2	115	535.800	ppb	#REF!	0.49	2000.00	>RL
205	Tl	2	209	0.745	ppb	#REF!	2.71	2000.00	ND
208	Pb	2	209	259.600	ppb	#REF!	0.85	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-8915.58	1.25	36.77	-24247.2	70 - 120	ISFail
45	Sc	1	131883.84	0.90	157844.06	83.6	70 - 120	
45	Sc	2	4577852.50	2.62	5827273.50	78.6	70 - 120	
72	Ge	1	70422.71	0.79	86621.49	81.3	70 - 120	
115	In	2	4674311.50	0.49	6276207.00	74.5	70 - 120	
209	Bi	2	3315398.80	1.21	4446753.50	74.6	70 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\116SMPL.D\116SMPL.D#

Date Acquired:	Aug 10 2016 10:46 pm	Sample Name:	**1607317-23A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD1
Operator:	KL	Bench Diln:	5
Last Cal. Update:	Aug 10 2016 01:05 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	71.060	ppb	#REF!	1.17	2000.00	>RL
9	Be	2	45	2.732	ppb	#REF!	1.73	2000.00	>RL
11	B	2	45	73.240	ppb	#REF!	0.90	2000.00	>RL
23	Na	1	45	8925.000	ppb	#REF!	1.70	25000.00	>RL
24	Mg	1	45	18400.000	ppb	#REF!	2.71	25000.00	>RL
27	Al	1	45	93090.000	ppb	#REF!	3.06	10000.00	OUTCAL
39	K	1	45	17450.000	ppb	#REF!	1.58	25000.00	>RL
44	Ca	2	45	163700.000	ppb	#REF!	2.25	25000.00	OUTCAL
47	Ti	1	45	242.900	ppb	#REF!	2.21	2000.00	>RL
51	V	1	45	131.500	ppb	#REF!	2.96	2000.00	>RL
52	Cr	1	45	70.130	ppb	#REF!	2.81	2000.00	>RL
55	Mn	1	45	626.000	ppb	#REF!	2.63	2000.00	>RL
56	Fe	1	72	81760.000	ppb	#REF!	2.71	10000.00	OUTCAL
59	Co	1	72	27.530	ppb	#REF!	2.39	2000.00	>RL
60	Ni	1	72	42.310	ppb	#REF!	2.29	2000.00	>RL
63	Cu	1	72	24.610	ppb	#REF!	1.57	2000.00	>RL
66	Zn	1	72	200.200	ppb	#REF!	2.04	2000.00	>RL
75	As	1	72	28.460	ppb	#REF!	0.61	2000.00	>RL
78	Se	1	72	14.410	ppb	#REF!	4.55	2000.00	>RL
88	Sr	2	115	496.600	ppb	#REF!	1.56	2000.00	>RL
95	Mo	2	115	1.511	ppb	#REF!	2.41	2000.00	ND
107	Ag	2	115	0.191	ppb	#REF!	11.17	500.00	ND
111	Cd	2	115	1.418	ppb	#REF!	9.27	2000.00	>RL
118	Sn	2	115	5.924	ppb	#REF!	1.90	2000.00	ND
121	Sb	2	115	0.479	ppb	#REF!	7.78	500.00	ND
137	Ba	2	115	603.700	ppb	#REF!	1.07	2000.00	>RL
205	Tl	2	209	0.725	ppb	#REF!	3.64	2000.00	ND
208	Pb	2	209	48.750	ppb	#REF!	1.25	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-10592.64	2.54	36.77	-28808.1	70 - 120	ISFail
45	Sc	1	136579.52	0.32	157844.06	86.5	70 - 120	
45	Sc	2	4752787.50	2.01	5827273.50	81.6	70 - 120	
72	Ge	1	72799.95	0.22	86621.49	84.0	70 - 120	
115	In	2	4817329.50	0.58	6276207.00	76.8	70 - 120	
209	Bi	2	3303215.30	0.94	4446753.50	74.3	70 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\118SMPL.D\118SMPL.D#

Date Acquired:	Aug 10 2016 10:58 pm	Sample Name:	**1607317-24A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD1
Operator:	KL	Bench Diln:	5
Last Cal. Update:	Aug 10 2016 01:05 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	69.760	ppb	#REF!	1.15	2000.00	>RL
9	Be	2	45	2.484	ppb	#REF!	2.81	2000.00	>RL
11	B	2	45	92.580	ppb	#REF!	1.69	2000.00	>RL
23	Na	1	45	8517.000	ppb	#REF!	1.80	25000.00	>RL
24	Mg	1	45	16700.000	ppb	#REF!	2.89	25000.00	>RL
27	Al	1	45	71840.000	ppb	#REF!	4.08	10000.00	OUTCAL
39	K	1	45	14420.000	ppb	#REF!	1.80	25000.00	>RL
44	Ca	2	45	271900.000	ppb	#REF!	2.74	25000.00	OUTCAL
47	Ti	1	45	210.400	ppb	#REF!	4.32	2000.00	>RL
51	V	1	45	128.000	ppb	#REF!	3.26	2000.00	>RL
52	Cr	1	45	60.920	ppb	#REF!	3.47	2000.00	>RL
55	Mn	1	45	601.100	ppb	#REF!	3.28	2000.00	>RL
56	Fe	1	72	77660.000	ppb	#REF!	3.24	10000.00	OUTCAL
59	Co	1	72	26.970	ppb	#REF!	3.06	2000.00	>RL
60	Ni	1	72	40.170	ppb	#REF!	3.18	2000.00	>RL
63	Cu	1	72	14.350	ppb	#REF!	2.91	2000.00	>RL
66	Zn	1	72	161.700	ppb	#REF!	3.13	2000.00	>RL
75	As	1	72	27.940	ppb	#REF!	2.56	2000.00	>RL
78	Se	1	72	14.960	ppb	#REF!	5.65	2000.00	>RL
88	Sr	2	115	663.200	ppb	#REF!	1.72	2000.00	>RL
95	Mo	2	115	1.629	ppb	#REF!	4.13	2000.00	ND
107	Ag	2	115	0.130	ppb	#REF!	4.36	500.00	ND
111	Cd	2	115	1.129	ppb	#REF!	8.97	2000.00	J
118	Sn	2	115	5.620	ppb	#REF!	0.61	2000.00	ND
121	Sb	2	115	0.418	ppb	#REF!	2.64	500.00	ND
137	Ba	2	115	3776.000	ppb	#REF!	0.68	2000.00	OUTCAL
205	Tl	2	209	0.560	ppb	#REF!	0.98	2000.00	ND
208	Pb	2	209	34.990	ppb	#REF!	0.74	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-10137.74	3.14	36.77	-27571.0	70 - 120	ISFail
45	Sc	1	123773.16	1.30	157844.06	78.4	70 - 120	
45	Sc	2	4439323.00	1.25	5827273.50	76.2	70 - 120	
72	Ge	1	65532.38	0.87	86621.49	75.7	70 - 120	
115	In	2	4631498.50	0.38	6276207.00	73.8	70 - 120	
209	Bi	2	3167727.00	0.49	4446753.50	71.2	70 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\119SMPL.D\119SMPL.D#

Date Acquired:	Aug 10 2016 11:04 pm	Sample Name:	**1607317-25A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD1
Operator:	KL	Bench Diln:	5
Last Cal. Update:	Aug 10 2016 01:05 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	74.300	ppb	#REF!	1.79	2000.00	>RL
9	Be	2	45	2.938	ppb	#REF!	2.05	2000.00	>RL
11	B	2	45	123.100	ppb	#REF!	1.22	2000.00	>RL
23	Na	1	45	8093.000	ppb	#REF!	1.87	25000.00	>RL
24	Mg	1	45	15740.000	ppb	#REF!	3.95	25000.00	>RL
27	Al	1	45	60340.000	ppb	#REF!	3.84	10000.00	OUTCAL
39	K	1	45	22240.000	ppb	#REF!	2.31	25000.00	>RL
44	Ca	2	45	38270.000	ppb	#REF!	1.77	25000.00	OUTCAL
47	Ti	1	45	255.300	ppb	#REF!	3.27	2000.00	>RL
51	V	1	45	79.720	ppb	#REF!	2.75	2000.00	>RL
52	Cr	1	45	70.350	ppb	#REF!	3.46	2000.00	>RL
55	Mn	1	45	323.400	ppb	#REF!	3.96	2000.00	>RL
56	Fe	1	72	93120.000	ppb	#REF!	4.27	10000.00	OUTCAL
59	Co	1	72	25.640	ppb	#REF!	2.88	2000.00	>RL
60	Ni	1	72	35.460	ppb	#REF!	2.53	2000.00	>RL
63	Cu	1	72	5.112	ppb	#REF!	3.27	2000.00	J
66	Zn	1	72	197.600	ppb	#REF!	2.34	2000.00	>RL
75	As	1	72	20.260	ppb	#REF!	2.38	2000.00	>RL
78	Se	1	72	14.330	ppb	#REF!	6.74	2000.00	>RL
88	Sr	2	115	323.200	ppb	#REF!	1.86	2000.00	>RL
95	Mo	2	115	1.565	ppb	#REF!	4.83	2000.00	ND
107	Ag	2	115	0.147	ppb	#REF!	9.03	500.00	ND
111	Cd	2	115	1.011	ppb	#REF!	12.14	2000.00	J
118	Sn	2	115	6.044	ppb	#REF!	0.68	2000.00	ND
121	Sb	2	115	0.104	ppb	#REF!	14.31	500.00	ND
137	Ba	2	115	144.200	ppb	#REF!	1.27	2000.00	>RL
205	Tl	2	209	0.327	ppb	#REF!	2.78	2000.00	ND
208	Pb	2	209	19.680	ppb	#REF!	1.67	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-11014.74	4.25	36.77	-29956.1	70 - 120	ISFail
45	Sc	1	133090.45	0.39	157844.06	84.3	70 - 120	
45	Sc	2	4561586.50	1.76	5827273.50	78.3	70 - 120	
72	Ge	1	71259.38	0.20	86621.49	82.3	70 - 120	
115	In	2	4675348.50	0.82	6276207.00	74.5	70 - 120	
209	Bi	2	3252195.80	1.03	4446753.50	73.1	70 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\120SMPL.D\120SMPL.D#

Date Acquired:	Aug 10 2016 11:10 pm	Sample Name:	**1607317-28A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD1
Operator:	KL	Bench Diln:	5
Last Cal. Update:	Aug 10 2016 01:05 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	85.680	ppb	#REF!	1.14	2000.00	>RL
9	Be	2	45	2.568	ppb	#REF!	1.40	2000.00	>RL
11	B	2	45	102.100	ppb	#REF!	0.98	2000.00	>RL
23	Na	1	45	8838.000	ppb	#REF!	2.06	25000.00	>RL
24	Mg	1	45	20190.000	ppb	#REF!	3.04	25000.00	>RL
27	Al	1	45	88210.000	ppb	#REF!	3.74	10000.00	OUTCAL
39	K	1	45	17290.000	ppb	#REF!	1.26	25000.00	>RL
44	Ca	2	45	136200.000	ppb	#REF!	2.07	25000.00	OUTCAL
47	Ti	1	45	333.900	ppb	#REF!	3.03	2000.00	>RL
51	V	1	45	130.200	ppb	#REF!	2.87	2000.00	>RL
52	Cr	1	45	69.380	ppb	#REF!	2.51	2000.00	>RL
55	Mn	1	45	644.400	ppb	#REF!	3.25	2000.00	>RL
56	Fe	1	72	74530.000	ppb	#REF!	3.57	10000.00	OUTCAL
59	Co	1	72	26.460	ppb	#REF!	2.78	2000.00	>RL
60	Ni	1	72	46.110	ppb	#REF!	2.26	2000.00	>RL
63	Cu	1	72	24.730	ppb	#REF!	2.03	2000.00	>RL
66	Zn	1	72	203.100	ppb	#REF!	2.60	2000.00	>RL
75	As	1	72	23.300	ppb	#REF!	2.25	2000.00	>RL
78	Se	1	72	14.700	ppb	#REF!	4.46	2000.00	>RL
88	Sr	2	115	622.800	ppb	#REF!	1.63	2000.00	>RL
95	Mo	2	115	2.023	ppb	#REF!	2.55	2000.00	J
107	Ag	2	115	0.183	ppb	#REF!	13.91	500.00	ND
111	Cd	2	115	1.496	ppb	#REF!	9.31	2000.00	>RL
118	Sn	2	115	6.056	ppb	#REF!	2.35	2000.00	ND
121	Sb	2	115	0.510	ppb	#REF!	3.44	500.00	ND
137	Ba	2	115	1319.000	ppb	#REF!	0.32	2000.00	>RL
205	Tl	2	209	0.711	ppb	#REF!	3.67	2000.00	ND
208	Pb	2	209	38.440	ppb	#REF!	0.25	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-12629.41	1.46	36.77	-34347.4	70 - 120	ISFail
45	Sc	1	130323.03	0.47	157844.06	82.6	70 - 120	
45	Sc	2	4612105.50	1.70	5827273.50	79.1	70 - 120	
72	Ge	1	69678.48	0.23	86621.49	80.4	70 - 120	
115	In	2	4645929.50	0.66	6276207.00	74.0	70 - 120	
209	Bi	2	3220691.80	0.71	4446753.50	72.4	70 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\121SMPL.D\121SMPL.D#

Date Acquired:	Aug 10 2016 11:16 pm	Sample Name:	**1607317-29A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD1
Operator:	KL	Bench Diln:	5
Last Cal. Update:	Aug 10 2016 01:05 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	115.300	ppb	#REF!	0.46	2000.00	>RL
9	Be	2	45	2.265	ppb	#REF!	4.94	2000.00	>RL
11	B	2	45	134.800	ppb	#REF!	0.41	2000.00	>RL
23	Na	1	45	11510.000	ppb	#REF!	1.60	25000.00	>RL
24	Mg	1	45	19890.000	ppb	#REF!	2.58	25000.00	>RL
27	Al	1	45	74490.000	ppb	#REF!	3.83	10000.00	OUTCAL
39	K	1	45	11780.000	ppb	#REF!	1.88	25000.00	>RL
44	Ca	2	45	252600.000	ppb	#REF!	1.11	25000.00	OUTCAL
47	Ti	1	45	257.100	ppb	#REF!	3.27	2000.00	>RL
51	V	1	45	130.000	ppb	#REF!	2.95	2000.00	>RL
52	Cr	1	45	62.360	ppb	#REF!	3.45	2000.00	>RL
55	Mn	1	45	429.200	ppb	#REF!	3.11	2000.00	>RL
56	Fe	1	72	64030.000	ppb	#REF!	3.45	10000.00	OUTCAL
59	Co	1	72	24.510	ppb	#REF!	2.84	2000.00	>RL
60	Ni	1	72	38.190	ppb	#REF!	1.70	2000.00	>RL
63	Cu	1	72	15.490	ppb	#REF!	3.71	2000.00	>RL
66	Zn	1	72	150.400	ppb	#REF!	3.58	2000.00	>RL
75	As	1	72	20.710	ppb	#REF!	2.84	2000.00	>RL
78	Se	1	72	11.460	ppb	#REF!	7.70	2000.00	>RL
88	Sr	2	115	606.100	ppb	#REF!	0.43	2000.00	>RL
95	Mo	2	115	1.455	ppb	#REF!	1.64	2000.00	ND
107	Ag	2	115	0.119	ppb	#REF!	7.42	500.00	ND
111	Cd	2	115	1.230	ppb	#REF!	11.51	2000.00	>RL
118	Sn	2	115	5.932	ppb	#REF!	1.40	2000.00	ND
121	Sb	2	115	0.241	ppb	#REF!	0.86	500.00	ND
137	Ba	2	115	587.100	ppb	#REF!	0.25	2000.00	>RL
205	Tl	2	209	0.567	ppb	#REF!	1.45	2000.00	ND
208	Pb	2	209	30.810	ppb	#REF!	0.56	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-17363.72	0.97	36.77	-47223.0	70 - 120	ISFail
45	Sc	1	123088.74	0.66	157844.06	78.0	70 - 120	
45	Sc	2	4705381.00	1.05	5827273.50	80.7	70 - 120	
72	Ge	1	65513.60	0.80	86621.49	75.6	70 - 120	
115	In	2	4799021.00	0.49	6276207.00	76.5	70 - 120	
209	Bi	2	3222880.80	0.46	4446753.50	72.5	70 - 120	

Sample QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\122SMPL.D\122SMPL.D#

Date Acquired:	Aug 10 2016 11:22 pm	Sample Name:	**1607317-30A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD1
Operator:	KL	Bench Diln:	5
Last Cal. Update:	Aug 10 2016 01:05 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	103.300	ppb	#REF!	0.31	2000.00	>RL
9	Be	2	45	1.803	ppb	#REF!	5.84	2000.00	>RL
11	B	2	45	132.600	ppb	#REF!	0.32	2000.00	>RL
23	Na	1	45	10930.000	ppb	#REF!	1.49	25000.00	>RL
24	Mg	1	45	14120.000	ppb	#REF!	2.12	25000.00	>RL
27	Al	1	45	60430.000	ppb	#REF!	3.25	10000.00	OUTCAL
39	K	1	45	8873.000	ppb	#REF!	2.13	25000.00	>RL
44	Ca	2	45	230900.000	ppb	#REF!	1.29	25000.00	OUTCAL
47	Ti	1	45	163.200	ppb	#REF!	2.49	2000.00	>RL
51	V	1	45	99.420	ppb	#REF!	2.83	2000.00	>RL
52	Cr	1	45	54.280	ppb	#REF!	2.86	2000.00	>RL
55	Mn	1	45	227.200	ppb	#REF!	1.95	2000.00	>RL
56	Fe	1	72	56330.000	ppb	#REF!	1.97	10000.00	OUTCAL
59	Co	1	72	21.220	ppb	#REF!	2.48	2000.00	>RL
60	Ni	1	72	24.570	ppb	#REF!	1.15	2000.00	>RL
63	Cu	1	72	9.707	ppb	#REF!	1.85	2000.00	>RL
66	Zn	1	72	118.300	ppb	#REF!	1.11	2000.00	>RL
75	As	1	72	18.470	ppb	#REF!	1.88	2000.00	>RL
78	Se	1	72	8.712	ppb	#REF!	1.78	2000.00	>RL
88	Sr	2	115	1786.000	ppb	#REF!	1.44	2000.00	>RL
95	Mo	2	115	2.237	ppb	#REF!	2.39	2000.00	J
107	Ag	2	115	0.119	ppb	#REF!	5.89	500.00	ND
111	Cd	2	115	0.725	ppb	#REF!	2.69	2000.00	J
118	Sn	2	115	6.008	ppb	#REF!	1.30	2000.00	ND
121	Sb	2	115	0.170	ppb	#REF!	4.81	500.00	ND
137	Ba	2	115	319.700	ppb	#REF!	0.74	2000.00	>RL
205	Tl	2	209	0.454	ppb	#REF!	3.90	2000.00	ND
208	Pb	2	209	25.030	ppb	#REF!	0.23	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-15500.69	3.05	36.77	-42156.3	70 - 120	ISFail
45	Sc	1	127020.01	0.25	157844.06	80.5	70 - 120	
45	Sc	2	4930539.50	1.83	5827273.50	84.6	70 - 120	
72	Ge	1	67969.76	0.34	86621.49	78.5	70 - 120	
115	In	2	4882207.00	1.12	6276207.00	77.8	70 - 120	
209	Bi	2	3284564.00	0.94	4446753.50	73.9	70 - 120	

CCV QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\123CCV1.D\123CCV1.D#

Date Acquired:	Aug 10 2016 11:28 pm	Sample Name:	**CCV5-160810**
Acq. Method:	DHL_3Fe.M	Misc Info:	CCV ICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 10 2016 01:05 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	210.60	ppb	0.35	200.00	90 -	110	105.3	
9	Be	2	45	196.10	ppb	1.31	200.00	90 -	110	98.1	
11	B	2	45	174.50	ppb	1.75	200.00	90 -	110	87.3	Fail
23	Na	1	45	5658.00	ppb	2.86	5000.00	90 -	110	113.2	Fail
24	Mg	1	45	5324.00	ppb	3.40	5000.00	90 -	110	106.5	
27	Al	1	45	5362.00	ppb	3.68	5000.00	90 -	110	107.2	
39	K	1	45	5447.00	ppb	2.52	5000.00	90 -	110	108.9	
44	Ca	2	45	5831.00	ppb	4.15	5000.00	90 -	110	116.6	Fail
47	Ti	1	45	206.10	ppb	3.61	200.00	90 -	110	103.1	
51	V	1	45	211.60	ppb	3.52	200.00	90 -	110	105.8	
52	Cr	1	45	211.50	ppb	4.22	200.00	90 -	110	105.8	
55	Mn	1	45	211.10	ppb	3.28	200.00	90 -	110	105.6	
56	Fe	1	72	5255.00	ppb	3.21	5000.00	90 -	110	105.1	
59	Co	1	72	207.90	ppb	3.00	200.00	90 -	110	104.0	
60	Ni	1	72	202.80	ppb	3.17	200.00	90 -	110	101.4	
63	Cu	1	72	205.70	ppb	3.01	200.00	90 -	110	102.9	
66	Zn	1	72	210.90	ppb	3.41	200.00	90 -	110	105.5	
75	As	1	72	213.40	ppb	2.48	200.00	90 -	110	106.7	
78	Se	1	72	208.50	ppb	1.71	200.00	90 -	110	104.3	
88	Sr	2	115	234.60	ppb	1.39	200.00	90 -	110	117.3	Fail
95	Mo	2	115	217.80	ppb	1.43	200.00	90 -	110	108.9	
107	Ag	2	115	204.30	ppb	1.25	200.00	90 -	110	102.2	
111	Cd	2	115	207.30	ppb	0.91	200.00	90 -	110	103.7	
118	Sn	2	115	206.30	ppb	1.06	200.00	90 -	110	103.2	
121	Sb	2	115	207.70	ppb	0.87	200.00	90 -	110	103.9	
137	Ba	2	115	203.20	ppb	1.11	200.00	90 -	110	101.6	
205	Tl	2	209	213.80	ppb	0.83	200.00	90 -	110	106.9	
208	Pb	2	209	202.00	ppb	1.05	200.00	90 -	110	101.0	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	-61362.46	1.49	36.77	-166883.7	70 -	120		ISFail
45	Sc	1	131068.99	1.04	157844.06	83.0	70 -	120		
45	Sc	2	5058765.00	2.37	5827273.50	86.8	70 -	120		
72	Ge	1	72377.49	0.37	86621.49	83.6	70 -	120		
115	In	2	4754028.50	1.42	6276207.00	75.7	70 -	120		
209	Bi	2	3357645.50	1.01	4446753.50	75.5	70 -	120		

CCV QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\125LCVL.D\125LCVL.D#

Date Acquired:	Aug 10 2016 11:40 pm	Sample Name:	**LCVL5-160810**
Acq. Method:	DHL_3Fe.M	Misc Info:	LCVLICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 10 2016 01:05 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	10.23	ppb	1.06	10.00	70 -	130	102.3	
9	Be	2	45	0.96	ppb	2.65	1.00	70 -	130	96.0	
11	B	2	45	18.18	ppb	1.92	20.00	70 -	130	90.9	
23	Na	1	45	97.71	ppb	1.46	100.00	70 -	130	97.7	
24	Mg	1	45	107.00	ppb	2.43	100.00	70 -	130	107.0	
27	Al	1	45	111.50	ppb	4.90	100.00	70 -	130	111.5	
39	K	1	45	119.80	ppb	0.54	100.00	70 -	130	119.8	
44	Ca	2	45	111.50	ppb	1.46	100.00	70 -	130	111.5	
47	Ti	1	45	5.29	ppb	6.64	5.00	70 -	130	105.8	
51	V	1	45	1.06	ppb	4.61	1.00	70 -	130	106.4	
52	Cr	1	45	5.21	ppb	2.52	5.00	70 -	130	104.2	
55	Mn	1	45	5.25	ppb	0.68	5.00	70 -	130	105.1	
56	Fe	1	72	111.40	ppb	0.75	100.00	70 -	130	111.4	
59	Co	1	72	5.00	ppb	2.93	5.00	70 -	130	100.0	
60	Ni	1	72	4.89	ppb	3.54	5.00	70 -	130	97.8	
63	Cu	1	72	5.04	ppb	3.21	5.00	70 -	130	100.8	
66	Zn	1	72	6.33	ppb	9.56	5.00	70 -	130	126.6	
75	As	1	72	5.23	ppb	2.97	5.00	70 -	130	104.6	
78	Se	1	72	5.53	ppb	4.34	5.00	70 -	130	110.5	
88	Sr	2	115	5.63	ppb	1.85	5.00	70 -	130	112.6	
95	Mo	2	115	5.34	ppb	1.07	5.00	70 -	130	106.8	
107	Ag	2	115	2.03	ppb	1.25	2.00	70 -	130	101.7	
111	Cd	2	115	1.03	ppb	11.14	1.00	70 -	130	102.5	
118	Sn	2	115	5.19	ppb	1.53	5.00	70 -	130	103.7	
121	Sb	2	115	2.11	ppb	1.72	2.00	70 -	130	105.5	
137	Ba	2	115	5.01	ppb	2.70	5.00	70 -	130	100.1	
205	Tl	2	209	1.09	ppb	1.79	1.00	70 -	130	109.3	
208	Pb	2	209	1.01	ppb	2.28	1.00	70 -	130	101.4	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	-1542.50	1.52	36.77	-4195.0	70 -	120	ISFail
45	Sc	1	121017.99	1.30	157844.06	76.7	70 -	120	
45	Sc	2	4481616.50	1.79	5827273.50	76.9	70 -	120	
72	Ge	1	67685.16	1.41	86621.49	78.1	70 -	120	
115	In	2	4247796.50	1.14	6276207.00	67.7	70 -	120	ISFail
209	Bi	2	3125507.50	0.51	4446753.50	70.3	70 -	120	

CCB QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\126_CCB.D\126_CCB.D#

Date Acquired:	Aug 10 2016 11:46 pm	Sample Name:	**CCB5-160810**
Acq. Method:	DHL_3Fe.M	Misc Info:	CCB ICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 10 2016 01:05 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	MDL S	MDL Aq	Flag
7	Li	2	45	0.148	ppb	8.38	2.00	2.00	
9	Be	2	45	0.025	ppb	18.65	0.40	0.30	
11	B	2	45	1.565	ppb	4.50	10.00	10.00	
23	Na	1	45	1.739	ppb	4.45	50.00	#####	
24	Mg	1	45	2.696	ppb	8.82	50.00	#####	
27	Al	1	45	11.430	ppb	10.51	50.00	10.00	FailAq
39	K	1	45	14.090	ppb	0.96	50.00	#####	
44	Ca	2	45	29.550	ppb	5.75	50.00	#####	
47	Ti	1	45	0.071	ppb	21.65	4.00	3.00	
51	V	1	45	0.030	ppb	7.02	4.00	3.00	
52	Cr	1	45	0.044	ppb	17.18	2.00	2.00	
55	Mn	1	45	0.141	ppb	16.35	2.00	3.00	
56	Fe	1	72	2.865	ppb	27.61	50.00	30.00	
59	Co	1	72	0.042	ppb	13.43	2.00	3.00	
60	Ni	1	72	0.097	ppb	23.89	2.00	3.00	
63	Cu	1	72	0.060	ppb	10.37	2.00	2.00	
66	Zn	1	72	1.934	ppb	20.68	4.00	2.00	
75	As	1	72	-0.028	ppb	7.33	2.00	2.00	
78	Se	1	72	0.072	ppb	17.07	0.60	2.00	
88	Sr	2	115	0.161	ppb	9.19	4.00	3.00	
95	Mo	2	115	0.053	ppb	18.43	2.00	2.00	
107	Ag	2	115	0.047	ppb	18.20	0.40	1.00	
111	Cd	2	115	0.053	ppb	29.77	0.40	0.30	
118	Sn	2	115	0.100	ppb	8.92	20.00	3.00	
121	Sb	2	115	0.053	ppb	5.75	2.00	0.80	
137	Ba	2	115	0.133	ppb	8.81	2.00	3.00	
205	Tl	2	209	0.080	ppb	15.91	2.00	0.50	
208	Pb	2	209	0.055	ppb	9.48	0.40	0.30	

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	RHigh	-31.54	38.80	36.77	-85.8	70 - 120	ISFail
45	Sc	1		116900.03	1.10	157844.06	74.1	70 - 120	
45	Sc	2		4228102.00	2.48	5827273.50	72.6	70 - 120	
72	Ge	1		65115.57	1.51	86621.49	75.2	70 - 120	
115	In	2		3843549.00	1.56	6276207.00	61.2	70 - 120	ISFail
209	Bi	2		2891584.80	0.73	4446753.50	65.0	70 - 120	ISFail

PB QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\127__PB.D\127__PB.D#

Date Acquired:	Aug 10 2016 11:52 pm	Sample Name:	**MB-76717**
Acq. Method:	DHL_3Fe.M	Misc Info:	MBLKICPMS_TSDOD
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	Aug 10 2016 01:05 pm	Auto Dil:	Undiluted
Instrument:	ICPMS3	Total Dil:	5.00

QC Elements

Element				Conc.		RSD(%)	MDL	RL	Flag
7	Li	2	45	0.120	ppb	3.31	2.0	8.00	
9	Be	2	45	-0.005	ppb	52.92	0.4	1.20	
11	B	2	45	1.318	ppb	1.30	10.0	30.00	
23	Na	1	45	-3.849	ppb	2.35	50.0	#####	
24	Mg	1	45	5.857	ppb	15.41	50.0	#####	
27	Al	1	45	5.807	ppb	10.44	50.0	#####	
39	K	1	45	12.500	ppb	1.61	50.0	#####	
44	Ca	2	45	33.740	ppb	12.05	50.0	#####	
47	Ti	1	45	0.270	ppb	39.04	4.0	10.00	
51	V	1	45	-0.010	ppb	3.16	4.0	10.00	
52	Cr	1	45	0.090	ppb	5.51	2.0	8.00	
55	Mn	1	45	0.148	ppb	14.50	2.0	8.00	
56	Fe	1	72	3.974	ppb	12.27	50.0	#####	
59	Co	1	72	0.008	ppb	42.05	2.0	8.00	
60	Ni	1	72	0.112	ppb	14.17	2.0	8.00	
63	Cu	1	72	0.080	ppb	5.10	2.0	8.00	
66	Zn	1	72	2.845	ppb	4.76	4.0	10.00	
75	As	1	72	-0.132	ppb	4.15	2.0	4.00	
78	Se	1	72	0.081	ppb	4.98	0.6	2.00	
88	Sr	2	115	0.136	ppb	18.45	4.0	10.00	
95	Mo	2	115	0.034	ppb	26.06	2.0	8.00	
107	Ag	2	115	0.017	ppb	25.85	0.4	0.80	
111	Cd	2	115	0.000	ppb	102.56	0.4	1.20	
118	Sn	2	115	4.250	ppb	2.18	20.0	40.00	
121	Sb	2	115	0.017	ppb	8.80	2.0	4.00	
137	Ba	2	115	0.055	ppb	5.25	2.0	8.00	
205	Tl	2	209	0.046	ppb	14.02	2.0	4.00	
208	Pb	2	209	0.057	ppb	17.70	0.4	1.20	

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	RHig	-35.89	32.18	36.77	-97.6	70 - 120	ISFail
45	Sc	1		117485.54	1.06	157844.06	74.4	70 - 120	
45	Sc	2		4266841.50	1.11	5827273.50	73.2	70 - 120	
72	Ge	1		63498.12	0.61	86621.49	73.3	70 - 120	
115	In	2		3844484.00	1.16	6276207.00	61.3	70 - 120	ISFail
209	Bi	2		2890698.30	0.39	4446753.50	65.0	70 - 120	ISFail

LCS QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\128_LCS.D\128_LCS.D#

Date Acquired:	Aug 10 2016 11:58 pm	Sample Name:	**LCS-76717**
Acq. Method:	DHL_3Fe.M	Misc Info:	LCS ICPMS_TSDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	Aug 10 2016 01:05 pm	Auto Dil:	Undiluted
Instrument:	ICPMS3	Total Dil:	5.00

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	195.40	ppb	1.48	200.00	80 -	120	97.7	
9	Be	2	45	182.20	ppb	1.24	200.00	80 -	120	91.1	
11	B	2	45	163.70	ppb	1.14	200.00	80 -	120	81.9	
23	Na	1	45	5531.00	ppb	1.71	5000.00	80 -	120	110.6	
24	Mg	1	45	5236.00	ppb	2.31	5000.00	80 -	120	104.7	
27	Al	1	45	1073.00	ppb	2.29	1000.00	80 -	120	107.3	
39	K	1	45	5304.00	ppb	1.25	5000.00	80 -	120	106.1	
44	Ca	2	45	5410.00	ppb	2.20	5000.00	80 -	120	108.2	
47	Ti	1	45	208.50	ppb	1.93	200.00	80 -	120	104.3	
51	V	1	45	207.80	ppb	2.47	200.00	80 -	120	103.9	
52	Cr	1	45	209.00	ppb	2.79	200.00	80 -	120	104.5	
55	Mn	1	45	211.80	ppb	2.96	200.00	80 -	120	105.9	
56	Fe	1	72	1045.00	ppb	3.14	1000.00	80 -	120	104.5	
59	Co	1	72	208.40	ppb	2.27	200.00	80 -	120	104.2	
60	Ni	1	72	201.60	ppb	2.43	200.00	80 -	120	100.8	
63	Cu	1	72	205.90	ppb	2.13	200.00	80 -	120	103.0	
66	Zn	1	72	209.10	ppb	1.50	200.00	80 -	120	104.6	
75	As	1	72	206.90	ppb	1.83	200.00	80 -	120	103.5	
78	Se	1	72	194.40	ppb	1.22	200.00	80 -	120	97.2	
88	Sr	2	115	234.90	ppb	1.25	200.00	80 -	120	117.5	
95	Mo	2	115	218.10	ppb	1.47	200.00	80 -	120	109.1	
107	Ag	2	115	200.70	ppb	0.48	200.00	80 -	120	100.4	
111	Cd	2	115	199.60	ppb	0.51	200.00	80 -	120	99.8	
118	Sn	2	115	208.30	ppb	0.37	200.00	80 -	120	104.2	
121	Sb	2	115	203.40	ppb	0.36	200.00	80 -	120	101.7	
137	Ba	2	115	206.40	ppb	1.10	200.00	80 -	120	103.2	
205	Tl	2	209	197.60	ppb	0.56	200.00	80 -	120	98.8	
208	Pb	2	209	198.90	ppb	0.79	200.00	80 -	120	99.5	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	-48089.16	1.84	36.77	-130785.1	70 -	120	ISFail
45	Sc	1	116598.05	0.61	157844.06	73.9	70 -	120	
45	Sc	2	4236061.50	1.61	5827273.50	72.7	70 -	120	
72	Ge	1	62824.13	0.29	86621.49	72.5	70 -	120	
115	In	2	3863850.00	0.44	6276207.00	61.6	70 -	120	ISFail
209	Bi	2	2872098.30	0.71	4446753.50	64.6	70 -	120	ISFail

LCS QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\129_LCS.D\129_LCS.D#

Date Acquired:	Aug 11 2016 12:04 am	Sample Name:	**LCSD-76717**
Acq. Method:	DHL_3Fe.M	Misc Info:	LCSDICPMS_TSDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	Aug 10 2016 01:05 pm	Auto Dil:	Undiluted
Instrument:	ICPMS3	Total Dil:	5.00

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	196.50	ppb	0.44	200.00	80 -	120	98.3	
9	Be	2	45	183.70	ppb	1.17	200.00	80 -	120	91.9	
11	B	2	45	168.90	ppb	1.49	200.00	80 -	120	84.5	
23	Na	1	45	5467.00	ppb	2.51	5000.00	80 -	120	109.3	
24	Mg	1	45	5191.00	ppb	3.63	5000.00	80 -	120	103.8	
27	Al	1	45	1085.00	ppb	4.60	1000.00	80 -	120	108.5	
39	K	1	45	5367.00	ppb	1.63	5000.00	80 -	120	107.3	
44	Ca	2	45	5462.00	ppb	1.27	5000.00	80 -	120	109.2	
47	Ti	1	45	212.40	ppb	3.25	200.00	80 -	120	106.2	
51	V	1	45	205.10	ppb	3.06	200.00	80 -	120	102.6	
52	Cr	1	45	204.60	ppb	3.46	200.00	80 -	120	102.3	
55	Mn	1	45	209.60	ppb	2.68	200.00	80 -	120	104.8	
56	Fe	1	72	1027.00	ppb	2.73	1000.00	80 -	120	102.7	
59	Co	1	72	202.60	ppb	2.48	200.00	80 -	120	101.3	
60	Ni	1	72	197.70	ppb	2.03	200.00	80 -	120	98.9	
63	Cu	1	72	199.80	ppb	2.63	200.00	80 -	120	99.9	
66	Zn	1	72	205.00	ppb	3.14	200.00	80 -	120	102.5	
75	As	1	72	204.90	ppb	1.77	200.00	80 -	120	102.5	
78	Se	1	72	195.60	ppb	2.41	200.00	80 -	120	97.8	
88	Sr	2	115	236.90	ppb	1.01	200.00	80 -	120	118.5	
95	Mo	2	115	220.20	ppb	1.14	200.00	80 -	120	110.1	
107	Ag	2	115	202.90	ppb	1.12	200.00	80 -	120	101.5	
111	Cd	2	115	200.50	ppb	0.39	200.00	80 -	120	100.3	
118	Sn	2	115	210.80	ppb	0.56	200.00	80 -	120	105.4	
121	Sb	2	115	204.30	ppb	0.82	200.00	80 -	120	102.2	
137	Ba	2	115	208.20	ppb	1.21	200.00	80 -	120	104.1	
205	Tl	2	209	199.70	ppb	0.30	200.00	80 -	120	99.9	
208	Pb	2	209	201.30	ppb	0.36	200.00	80 -	120	100.7	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	-47244.52	0.58	36.77	-128488.0	70 -	120	ISFail
45	Sc	1	117346.59	0.88	157844.06	74.3	70 -	120	
45	Sc	2	4104465.00	1.66	5827273.50	70.4	70 -	120	
72	Ge	1	63277.79	0.46	86621.49	73.1	70 -	120	
115	In	2	3694957.50	0.65	6276207.00	58.9	70 -	120	ISFail
209	Bi	2	2771013.50	0.04	4446753.50	62.3	70 -	120	ISFail

Sample QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\131AREF.D\131AREF.D#

Date Acquired:	Aug 11 2016 12:17 am	Sample Name:	**1607317-27A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD1
Operator:	KL	Bench Diln:	5
Last Cal. Update:	Aug 10 2016 01:05 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	59.840	ppb	#REF!	1.51	2000.00	>RL
9	Be	2	45	2.324	ppb	#REF!	5.53	2000.00	>RL
11	B	2	45	56.740	ppb	#REF!	1.30	2000.00	>RL
23	Na	1	45	2146.000	ppb	#REF!	1.58	25000.00	>RL
24	Mg	1	45	13730.000	ppb	#REF!	2.90	25000.00	>RL
27	Al	1	45	75820.000	ppb	#REF!	3.51	10000.00	OUTCAL
39	K	1	45	15520.000	ppb	#REF!	1.90	25000.00	>RL
44	Ca	2	45	52160.000	ppb	#REF!	2.36	25000.00	OUTCAL
47	Ti	1	45	202.900	ppb	#REF!	2.61	2000.00	>RL
51	V	1	45	96.820	ppb	#REF!	2.68	2000.00	>RL
52	Cr	1	45	59.330	ppb	#REF!	2.99	2000.00	>RL
55	Mn	1	45	572.400	ppb	#REF!	3.05	2000.00	>RL
56	Fe	1	72	66040.000	ppb	#REF!	2.85	10000.00	OUTCAL
59	Co	1	72	23.380	ppb	#REF!	3.09	2000.00	>RL
60	Ni	1	72	37.950	ppb	#REF!	2.99	2000.00	>RL
63	Cu	1	72	22.500	ppb	#REF!	1.82	2000.00	>RL
66	Zn	1	72	207.400	ppb	#REF!	2.75	2000.00	>RL
75	As	1	72	23.430	ppb	#REF!	3.08	2000.00	>RL
78	Se	1	72	13.080	ppb	#REF!	3.31	2000.00	>RL
88	Sr	2	115	344.300	ppb	#REF!	1.24	2000.00	>RL
95	Mo	2	115	1.790	ppb	#REF!	7.08	2000.00	ND
107	Ag	2	115	0.282	ppb	#REF!	3.55	500.00	ND
111	Cd	2	115	1.133	ppb	#REF!	9.19	2000.00	J
118	Sn	2	115	5.578	ppb	#REF!	2.99	2000.00	J
121	Sb	2	115	4.907	ppb	#REF!	0.83	500.00	>RL
137	Ba	2	115	334.900	ppb	#REF!	0.46	2000.00	>RL
205	Tl	2	209	0.783	ppb	#REF!	6.03	2000.00	ND
208	Pb	2	209	188.000	ppb	#REF!	0.97	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-7596.21	1.25	36.77	-20658.9	70 - 120	ISFail
45	Sc	1	117041.53	0.88	157844.06	74.2	70 - 120	
45	Sc	2	4010365.00	2.30	5827273.50	68.8	70 - 120	ISFail
72	Ge	1	62317.84	1.86	86621.49	71.9	70 - 120	
115	In	2	3930169.00	0.54	6276207.00	62.6	70 - 120	ISFail
209	Bi	2	2833854.00	0.33	4446753.50	63.7	70 - 120	ISFail

DT QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\132DT1.D\132DT1.D#

Date Acquired:	Aug 11 2016 12:23 am	Sample Name:	**1607317-27A SD**
Acq. Method:	DHL_3Fe.M	Misc Info:	SD ICPMS_TSDOD1
Operator:	KL	Bench Diln:	25.00
Last Cal. Update:	Aug 10 2016 01:05 pm	Auto Diln:	Undiluted
Instrument:	ICPMS3	Total Diln:	25.00

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)	Rec(%)	Flag
7	Li	2	45	0.09	ppb	26.26	-8.87	90 - 110	-4.9	
9	Be	2	45	0.00	ppb	48.24	2.32	90 - 110	0.7	
11	B	2	45	1.78	ppb	2.10	56.74	90 - 110	15.7	
23	Na	1	45	-0.86	ppb	0.58	2146.00	90 - 110	-0.2	
24	Mg	1	45	7.61	ppb	13.12	13730.00	90 - 110	0.3	
27	Al	1	45	41.06	ppb	19.73	75820.00	90 - 110	0.3	
39	K	1	45	23.29	ppb	2.89	15520.00	90 - 110	0.8	
44	Ca	2	45	32.30	ppb	33.47	52160.00	90 - 110	0.3	
47	Ti	1	45	0.31	ppb	28.86	202.90	90 - 110	0.8	
51	V	1	45	-0.03	ppb	11.81	96.82	90 - 110	-0.2	
52	Cr	1	45	0.05	ppb	1.83	59.33	90 - 110	0.4	
55	Mn	1	45	0.48	ppb	11.22	572.40	90 - 110	0.4	
56	Fe	1	72	40.96	ppb	20.49	66040.00	90 - 110	0.3	
59	Co	1	72	0.02	ppb	30.81	23.38	90 - 110	0.5	
60	Ni	1	72	0.08	ppb	6.65	37.95	90 - 110	1.1	
63	Cu	1	72	0.58	ppb	5.42	22.50	90 - 110	12.9	
66	Zn	1	72	3.74	ppb	13.18	207.40	90 - 110	9.0	
75	As	1	72	-0.03	ppb	1.02	23.43	90 - 110	-0.6	
78	Se	1	72	0.27	ppb	22.93	13.08	90 - 110	10.1	
88	Sr	2	115	0.26	ppb	32.83	344.30	90 - 110	0.4	
95	Mo	2	115	0.05	ppb	53.69	1.79	90 - 110	15.1	
107	Ag	2	115	0.01	ppb	56.06	0.28	90 - 110	25.6	
111	Cd	2	115	0.02	ppb	48.31	1.13	90 - 110	9.5	
118	Sn	2	115	0.03	ppb	1.94	5.58	90 - 110	3.1	
121	Sb	2	115	0.06	ppb	34.44	4.91	90 - 110	5.6	
137	Ba	2	115	0.28	ppb	32.69	334.90	90 - 110	0.4	
205	Tl	2	209	0.11	ppb	5.04	0.78	90 - 110	67.8	
208	Pb	2	209	0.18	ppb	40.16	188.00	90 - 110	0.5	

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	RHig	-8.87	220.34	36.77	-24.1	70 -	120	ISFail
45	Sc	1		118966.98	1.35	157844.06	75.4	70 -	120	
45	Sc	2		3778620.30	2.77	5827273.50	64.8	70 -	120	ISFail
72	Ge	1		65575.34	0.94	86621.49	75.7	70 -	120	
115	In	2		3757943.30	1.69	6276207.00	59.9	70 -	120	ISFail
209	Bi	2		2916052.00	1.20	4446753.50	65.6	70 -	120	ISFail

Sample QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\133SMPL.D\133SMPL.D#

Date Acquired:	Aug 11 2016 12:29 am	Sample Name:	**1607317-31A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD1
Operator:	KL	Bench Diln:	5
Last Cal. Update:	Aug 10 2016 01:05 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	53.360	ppb	#REF!	1.14	2000.00	>RL
9	Be	2	45	2.102	ppb	#REF!	1.40	2000.00	>RL
11	B	2	45	55.370	ppb	#REF!	1.13	2000.00	>RL
23	Na	1	45	2753.000	ppb	#REF!	1.32	25000.00	>RL
24	Mg	1	45	13020.000	ppb	#REF!	1.59	25000.00	>RL
27	Al	1	45	72010.000	ppb	#REF!	2.66	10000.00	OUTCAL
39	K	1	45	14790.000	ppb	#REF!	0.73	25000.00	>RL
44	Ca	2	45	45900.000	ppb	#REF!	2.50	25000.00	OUTCAL
47	Ti	1	45	191.500	ppb	#REF!	4.01	2000.00	>RL
51	V	1	45	90.680	ppb	#REF!	2.02	2000.00	>RL
52	Cr	1	45	54.950	ppb	#REF!	1.32	2000.00	>RL
55	Mn	1	45	526.500	ppb	#REF!	1.87	2000.00	>RL
56	Fe	1	72	62690.000	ppb	#REF!	1.55	10000.00	OUTCAL
59	Co	1	72	22.180	ppb	#REF!	0.99	2000.00	>RL
60	Ni	1	72	35.950	ppb	#REF!	2.30	2000.00	>RL
63	Cu	1	72	27.920	ppb	#REF!	1.66	2000.00	>RL
66	Zn	1	72	206.300	ppb	#REF!	1.80	2000.00	>RL
75	As	1	72	23.770	ppb	#REF!	1.35	2000.00	>RL
78	Se	1	72	12.770	ppb	#REF!	3.81	2000.00	>RL
88	Sr	2	115	295.700	ppb	#REF!	1.64	2000.00	>RL
95	Mo	2	115	1.635	ppb	#REF!	3.90	2000.00	ND
107	Ag	2	115	0.239	ppb	#REF!	4.39	500.00	ND
111	Cd	2	115	1.051	ppb	#REF!	4.63	2000.00	J
118	Sn	2	115	5.376	ppb	#REF!	1.52	2000.00	ND
121	Sb	2	115	5.589	ppb	#REF!	0.92	500.00	>RL
137	Ba	2	115	333.000	ppb	#REF!	0.94	2000.00	>RL
205	Tl	2	209	0.598	ppb	#REF!	3.73	2000.00	ND
208	Pb	2	209	267.500	ppb	#REF!	0.97	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-6362.02	4.21	36.77	-17302.4	70 - 120	ISFail
45	Sc	1	115973.32	0.71	157844.06	73.5	70 - 120	
45	Sc	2	3719688.80	2.24	5827273.50	63.8	70 - 120	ISFail
72	Ge	1	61090.54	0.83	86621.49	70.5	70 - 120	
115	In	2	3536489.00	0.31	6276207.00	56.3	70 - 120	ISFail
209	Bi	2	2644396.80	0.82	4446753.50	59.5	70 - 120	ISFail

ICSA QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\134ICSA.D\134ICSA.D#

Date Acquired:	Aug 11 2016 12:35 am	Sample Name:	**ICSA-160810**
Acq. Method:	DHL_3Fe.M	Misc Info:	ICSAICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 10 2016 01:05 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	RL S	RL Aq	Flag
7	Li	2	45	0.148	ppb	5.27	8.00	5.00	
9	Be	2	45	0.012	ppb	17.29	0.32	0.80	
11	B	2	45	2.787	ppb	3.51	30.00	30.00	
23	Na	1	45	100200.000	ppb	2.75	#######	#######	
24	Mg	1	45	89250.000	ppb	3.62	#######	#######	
27	Al	1	45	102200.000	ppb	4.62	#######	#######	
39	K	1	45	98040.000	ppb	3.21	#######	#######	
44	Ca	2	45	94350.000	ppb	1.94	#######	#######	
47	Ti	1	45	1940.000	ppb	5.51	10.00	10.00	
51	V	1	45	0.074	ppb	17.42	10.00	10.00	
52	Cr	1	45	0.857	ppb	1.26	8.00	5.00	
55	Mn	1	45	1.183	ppb	8.90	8.00	10.00	
56	Fe	1	72	91530.000	ppb	4.75	#######	#######	
59	Co	1	72	1.239	ppb	1.88	8.00	10.00	
60	Ni	1	72	0.424	ppb	12.69	8.00	10.00	
63	Cu	1	72	1.983	ppb	2.45	8.00	10.00	
66	Zn	1	72	3.395	ppb	3.97	10.00	5.00	
75	As	1	72	0.410	ppb	7.87	4.00	5.00	
78	Se	1	72	0.388	ppb	8.64	2.00	5.00	
88	Sr	2	115	1.323	ppb	5.72	10.00	10.00	
95	Mo	2	115	2059.000	ppb	0.60	8.00	5.00	
107	Ag	2	115	0.098	ppb	10.88	0.80	2.00	
111	Cd	2	115	0.207	ppb	51.36	1.20	1.00	
118	Sn	2	115	0.139	ppb	4.75	10.00	10.00	
121	Sb	2	115	0.150	ppb	11.65	4.00	2.50	
137	Ba	2	115	0.673	ppb	13.18	8.00	10.00	
205	Tl	2	209	0.074	ppb	0.78	4.00	1.50	
208	Pb	2	209	0.368	ppb	6.04	1.20	1.00	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	-17.77	29.61	36.77	-48.3	70 -	120	ISFail
45	Sc	1	110337.30	1.98	157844.06	69.9	70 -	120	ISFail
45	Sc	2	3956714.00	1.83	5827273.50	67.9	70 -	120	ISFail
72	Ge	1	60022.06	2.41	86621.49	69.3	70 -	120	ISFail
115	In	2	3977300.80	0.48	6276207.00	63.4	70 -	120	ISFail
209	Bi	2	2720411.50	0.56	4446753.50	61.2	70 -	120	ISFail

ICS-AB QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\135ICSB.D\135ICSB.D#

Date Acquired:	Aug 11 2016 12:41 am	Sample Name:	**ICSAB-160810**
Acq. Method:	DHL_3Fe.M	Misc Info:	ICSBICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 10 2016 01:05 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)			Flag
7	Li	2	45	0.13	ppb	8.72	---	80 -	120		
9	Be	2	45	0.00	ppb	27.94	---	80 -	120		
11	B	2	45	2.40	ppb	0.91	---	80 -	120		
23	Na	1	45	94680.00	ppb	2.48	100000.00	80 -	120		
24	Mg	1	45	89700.00	ppb	3.60	100000.00	80 -	120		
27	Al	1	45	100500.00	ppb	3.98	100000.00	80 -	120		
39	K	1	45	97910.00	ppb	1.39	100000.00	80 -	120		
44	Ca	2	45	94370.00	ppb	2.09	100000.00	80 -	120		
47	Ti	1	45	1944.00	ppb	3.44	---	80 -	120		
51	V	1	45	39.30	ppb	4.47	40.00	80 -	120		
52	Cr	1	45	20.00	ppb	4.12	20.00	80 -	120		
55	Mn	1	45	19.65	ppb	2.74	20.00	80 -	120		
56	Fe	1	72	89870.00	ppb	3.51	100000.00	80 -	120		
59	Co	1	72	37.04	ppb	2.88	40.00	80 -	120		
60	Ni	1	72	33.35	ppb	3.10	40.00	80 -	120		
63	Cu	1	72	18.34	ppb	2.29	20.00	80 -	120		
66	Zn	1	72	18.88	ppb	8.37	20.00	80 -	120		
75	As	1	72	19.81	ppb	3.17	20.00	80 -	120		
78	Se	1	72	18.11	ppb	5.90	20.00	80 -	120		
88	Sr	2	115	1.11	ppb	2.71	---	80 -	120		
95	Mo	2	115	2060.00	ppb	0.90	---	80 -	120		
107	Ag	2	115	17.56	ppb	1.58	20.00	80 -	120		
111	Cd	2	115	9.05	ppb	3.08	10.00	80 -	120		
118	Sn	2	115	0.31	ppb	13.19	---	80 -	120		
121	Sb	2	115	0.06	ppb	8.30	---	80 -	120		
137	Ba	2	115	0.43	ppb	4.42	---	80 -	120		
205	Tl	2	209	0.07	ppb	19.28	---	80 -	120		
208	Pb	2	209	0.21	ppb	3.67	---	80 -	120		

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	-28.35	61.91	36.77	-77.1	70 -	120		ISFail
45	Sc	1	108485.65	0.93	157844.06	68.7	70 -	120		ISFail
45	Sc	2	4039613.00	2.23	5827273.50	69.3	70 -	120		ISFail
72	Ge	1	59653.77	0.92	86621.49	68.9	70 -	120		ISFail
115	In	2	4029364.00	0.57	6276207.00	64.2	70 -	120		ISFail
209	Bi	2	2705154.30	1.27	4446753.50	60.8	70 -	120		ISFail

Sample QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\138SMPL.D\138SMPL.D#

Date Acquired:	Aug 11 2016 12:59 am	Sample Name:	**1607317-32A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD1
Operator:	KL	Bench Diln:	5
Last Cal. Update:	Aug 10 2016 01:05 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	93.710	ppb	#REF!	1.88	2000.00	>RL
9	Be	2	45	2.761	ppb	#REF!	4.24	2000.00	>RL
11	B	2	45	103.000	ppb	#REF!	2.14	2000.00	>RL
23	Na	1	45	10010.000	ppb	#REF!	1.51	25000.00	>RL
24	Mg	1	45	18710.000	ppb	#REF!	2.41	25000.00	>RL
27	Al	1	45	81400.000	ppb	#REF!	2.62	10000.00	OUTCAL
39	K	1	45	16030.000	ppb	#REF!	3.13	25000.00	>RL
44	Ca	2	45	118000.000	ppb	#REF!	3.06	25000.00	OUTCAL
47	Ti	1	45	291.100	ppb	#REF!	1.81	2000.00	>RL
51	V	1	45	129.300	ppb	#REF!	3.20	2000.00	>RL
52	Cr	1	45	67.300	ppb	#REF!	3.08	2000.00	>RL
55	Mn	1	45	594.900	ppb	#REF!	2.94	2000.00	>RL
56	Fe	1	72	74610.000	ppb	#REF!	2.87	10000.00	OUTCAL
59	Co	1	72	25.830	ppb	#REF!	3.13	2000.00	>RL
60	Ni	1	72	44.930	ppb	#REF!	3.44	2000.00	>RL
63	Cu	1	72	29.020	ppb	#REF!	2.12	2000.00	>RL
66	Zn	1	72	201.400	ppb	#REF!	1.94	2000.00	>RL
75	As	1	72	24.290	ppb	#REF!	2.18	2000.00	>RL
78	Se	1	72	13.320	ppb	#REF!	6.11	2000.00	>RL
88	Sr	2	115	483.200	ppb	#REF!	1.91	2000.00	>RL
95	Mo	2	115	2.214	ppb	#REF!	3.87	2000.00	J
107	Ag	2	115	0.215	ppb	#REF!	3.69	500.00	ND
111	Cd	2	115	1.224	ppb	#REF!	9.09	2000.00	>RL
118	Sn	2	115	5.777	ppb	#REF!	1.38	2000.00	ND
121	Sb	2	115	0.733	ppb	#REF!	1.51	500.00	ND
137	Ba	2	115	478.500	ppb	#REF!	1.65	2000.00	>RL
205	Tl	2	209	0.679	ppb	#REF!	1.65	2000.00	ND
208	Pb	2	209	38.970	ppb	#REF!	1.03	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-13771.30	1.12	36.77	-37452.9	70 - 120	ISFail
45	Sc	1	127063.13	1.07	157844.06	80.5	70 - 120	
45	Sc	2	5092289.50	1.93	5827273.50	87.4	70 - 120	
72	Ge	1	68067.06	0.86	86621.49	78.6	70 - 120	
115	In	2	4653014.50	1.05	6276207.00	74.1	70 - 120	
209	Bi	2	3110641.50	0.74	4446753.50	70.0	70 - 120	ISFail

Sample QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\139SMPL.D\139SMPL.D#

Date Acquired:	Aug 11 2016 01:05 am	Sample Name:	**1607317-33A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD1
Operator:	KL	Bench Diln:	5
Last Cal. Update:	Aug 10 2016 01:05 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	97.810	ppb	#REF!	2.06	2000.00	>RL
9	Be	2	45	2.052	ppb	#REF!	1.81	2000.00	>RL
11	B	2	45	134.600	ppb	#REF!	1.57	2000.00	>RL
23	Na	1	45	11090.000	ppb	#REF!	1.92	25000.00	>RL
24	Mg	1	45	17930.000	ppb	#REF!	2.35	25000.00	>RL
27	Al	1	45	64920.000	ppb	#REF!	4.41	10000.00	OUTCAL
39	K	1	45	10890.000	ppb	#REF!	2.51	25000.00	>RL
44	Ca	2	45	197400.000	ppb	#REF!	1.77	25000.00	OUTCAL
47	Ti	1	45	270.600	ppb	#REF!	4.90	2000.00	>RL
51	V	1	45	114.400	ppb	#REF!	3.18	2000.00	>RL
52	Cr	1	45	54.740	ppb	#REF!	3.49	2000.00	>RL
55	Mn	1	45	390.100	ppb	#REF!	3.89	2000.00	>RL
56	Fe	1	72	54040.000	ppb	#REF!	3.97	10000.00	OUTCAL
59	Co	1	72	20.590	ppb	#REF!	3.20	2000.00	>RL
60	Ni	1	72	31.290	ppb	#REF!	3.12	2000.00	>RL
63	Cu	1	72	18.550	ppb	#REF!	3.65	2000.00	>RL
66	Zn	1	72	137.000	ppb	#REF!	2.32	2000.00	>RL
75	As	1	72	18.310	ppb	#REF!	2.26	2000.00	>RL
78	Se	1	72	10.610	ppb	#REF!	7.06	2000.00	>RL
88	Sr	2	115	475.500	ppb	#REF!	1.51	2000.00	>RL
95	Mo	2	115	1.839	ppb	#REF!	2.82	2000.00	ND
107	Ag	2	115	0.136	ppb	#REF!	4.81	500.00	ND
111	Cd	2	115	1.034	ppb	#REF!	16.95	2000.00	J
118	Sn	2	115	5.517	ppb	#REF!	2.52	2000.00	ND
121	Sb	2	115	0.514	ppb	#REF!	9.81	500.00	ND
137	Ba	2	115	1040.000	ppb	#REF!	1.54	2000.00	>RL
205	Tl	2	209	0.562	ppb	#REF!	1.40	2000.00	ND
208	Pb	2	209	32.810	ppb	#REF!	1.18	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-13938.66	3.11	36.77	-37908.1	70 - 120	ISFail
45	Sc	1	127098.54	0.30	157844.06	80.5	70 - 120	
45	Sc	2	4995913.50	2.14	5827273.50	85.7	70 - 120	
72	Ge	1	67488.36	0.78	86621.49	77.9	70 - 120	
115	In	2	4464954.50	1.16	6276207.00	71.1	70 - 120	
209	Bi	2	2981048.00	0.68	4446753.50	67.0	70 - 120	ISFail

Sample QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\140SMPL.D\140SMPL.D#

Date Acquired:	Aug 11 2016 01:11 am	Sample Name:	**1607317-34A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD1
Operator:	KL	Bench Diln:	5
Last Cal. Update:	Aug 10 2016 01:05 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	125.200	ppb	#REF!	1.75	2000.00	>RL
9	Be	2	45	2.092	ppb	#REF!	2.81	2000.00	>RL
11	B	2	45	171.700	ppb	#REF!	2.98	2000.00	>RL
23	Na	1	45	12690.000	ppb	#REF!	0.99	25000.00	>RL
24	Mg	1	45	17930.000	ppb	#REF!	1.41	25000.00	>RL
27	Al	1	45	69600.000	ppb	#REF!	2.49	10000.00	OUTCAL
39	K	1	45	10860.000	ppb	#REF!	0.83	25000.00	>RL
44	Ca	2	45	242400.000	ppb	#REF!	2.74	25000.00	OUTCAL
47	Ti	1	45	236.300	ppb	#REF!	2.93	2000.00	>RL
51	V	1	45	120.400	ppb	#REF!	2.35	2000.00	>RL
52	Cr	1	45	62.740	ppb	#REF!	2.65	2000.00	>RL
55	Mn	1	45	315.900	ppb	#REF!	2.58	2000.00	>RL
56	Fe	1	72	67440.000	ppb	#REF!	2.40	10000.00	OUTCAL
59	Co	1	72	21.060	ppb	#REF!	2.27	2000.00	>RL
60	Ni	1	72	30.470	ppb	#REF!	1.17	2000.00	>RL
63	Cu	1	72	13.370	ppb	#REF!	1.87	2000.00	>RL
66	Zn	1	72	132.700	ppb	#REF!	2.03	2000.00	>RL
75	As	1	72	21.540	ppb	#REF!	0.83	2000.00	>RL
78	Se	1	72	10.570	ppb	#REF!	1.77	2000.00	>RL
88	Sr	2	115	942.500	ppb	#REF!	1.78	2000.00	>RL
95	Mo	2	115	2.609	ppb	#REF!	4.37	2000.00	J
107	Ag	2	115	0.126	ppb	#REF!	12.39	500.00	ND
111	Cd	2	115	1.099	ppb	#REF!	3.48	2000.00	J
118	Sn	2	115	6.063	ppb	#REF!	2.56	2000.00	ND
121	Sb	2	115	0.204	ppb	#REF!	3.72	500.00	ND
137	Ba	2	115	902.000	ppb	#REF!	1.21	2000.00	>RL
205	Tl	2	209	0.514	ppb	#REF!	3.53	2000.00	ND
208	Pb	2	209	38.320	ppb	#REF!	1.29	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-17616.43	4.01	36.77	-47910.3	70 - 120	ISFail
45	Sc	1	124393.65	0.74	157844.06	78.8	70 - 120	
45	Sc	2	4860193.00	2.57	5827273.50	83.4	70 - 120	
72	Ge	1	66304.15	0.24	86621.49	76.5	70 - 120	
115	In	2	4359079.50	1.70	6276207.00	69.5	70 - 120	ISFail
209	Bi	2	2881576.50	1.33	4446753.50	64.8	70 - 120	ISFail

Sample QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\141SMPL.D\141SMPL.D#

Date Acquired:	Aug 11 2016 01:16 am	Sample Name:	**1607317-35A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD1
Operator:	KL	Bench Diln:	5
Last Cal. Update:	Aug 10 2016 01:05 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	60.030	ppb	#REF!	3.14	2000.00	>RL
9	Be	2	45	2.111	ppb	#REF!	2.57	2000.00	>RL
11	B	2	45	55.570	ppb	#REF!	3.25	2000.00	>RL
23	Na	1	45	2567.000	ppb	#REF!	1.10	25000.00	>RL
24	Mg	1	45	11660.000	ppb	#REF!	2.66	25000.00	>RL
27	Al	1	45	62180.000	ppb	#REF!	3.16	10000.00	OUTCAL
39	K	1	45	12960.000	ppb	#REF!	1.29	25000.00	>RL
44	Ca	2	45	36170.000	ppb	#REF!	3.21	25000.00	OUTCAL
47	Ti	1	45	187.900	ppb	#REF!	2.46	2000.00	>RL
51	V	1	45	81.810	ppb	#REF!	2.82	2000.00	>RL
52	Cr	1	45	50.990	ppb	#REF!	2.37	2000.00	>RL
55	Mn	1	45	458.600	ppb	#REF!	2.89	2000.00	>RL
56	Fe	1	72	55290.000	ppb	#REF!	3.27	10000.00	OUTCAL
59	Co	1	72	21.040	ppb	#REF!	1.91	2000.00	>RL
60	Ni	1	72	33.350	ppb	#REF!	1.95	2000.00	>RL
63	Cu	1	72	21.290	ppb	#REF!	2.53	2000.00	>RL
66	Zn	1	72	195.900	ppb	#REF!	2.68	2000.00	>RL
75	As	1	72	21.460	ppb	#REF!	1.35	2000.00	>RL
78	Se	1	72	11.340	ppb	#REF!	5.31	2000.00	>RL
88	Sr	2	115	263.200	ppb	#REF!	1.71	2000.00	>RL
95	Mo	2	115	1.668	ppb	#REF!	5.32	2000.00	ND
107	Ag	2	115	0.215	ppb	#REF!	6.77	500.00	ND
111	Cd	2	115	1.055	ppb	#REF!	11.87	2000.00	J
118	Sn	2	115	5.234	ppb	#REF!	2.48	2000.00	ND
121	Sb	2	115	3.842	ppb	#REF!	2.25	500.00	J
137	Ba	2	115	290.300	ppb	#REF!	1.74	2000.00	>RL
205	Tl	2	209	0.509	ppb	#REF!	3.44	2000.00	ND
208	Pb	2	209	137.300	ppb	#REF!	1.08	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-7562.56	3.10	36.77	-20567.4	70 - 120	ISFail
45	Sc	1	113795.48	0.20	157844.06	72.1	70 - 120	
45	Sc	2	4525321.50	2.84	5827273.50	77.7	70 - 120	
72	Ge	1	62079.22	0.66	86621.49	71.7	70 - 120	
115	In	2	4056541.50	1.42	6276207.00	64.6	70 - 120	ISFail
209	Bi	2	2791450.50	1.39	4446753.50	62.8	70 - 120	ISFail

Sample QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\143SMPL.D\143SMPL.D#

Date Acquired:	Aug 11 2016 01:29 am	Sample Name:	**1607317-36A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD1
Operator:	KL	Bench Diln:	5
Last Cal. Update:	Aug 10 2016 01:05 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	94.400	ppb	#REF!	2.00	2000.00	>RL
9	Be	2	45	2.567	ppb	#REF!	2.27	2000.00	>RL
11	B	2	45	120.700	ppb	#REF!	2.96	2000.00	>RL
23	Na	1	45	11420.000	ppb	#REF!	2.56	25000.00	>RL
24	Mg	1	45	19790.000	ppb	#REF!	2.88	25000.00	>RL
27	Al	1	45	83700.000	ppb	#REF!	3.97	10000.00	OUTCAL
39	K	1	45	15950.000	ppb	#REF!	1.99	25000.00	>RL
44	Ca	2	45	133400.000	ppb	#REF!	2.67	25000.00	OUTCAL
47	Ti	1	45	305.100	ppb	#REF!	3.46	2000.00	>RL
51	V	1	45	124.000	ppb	#REF!	3.17	2000.00	>RL
52	Cr	1	45	66.510	ppb	#REF!	3.03	2000.00	>RL
55	Mn	1	45	549.300	ppb	#REF!	2.70	2000.00	>RL
56	Fe	1	72	65920.000	ppb	#REF!	2.86	10000.00	OUTCAL
59	Co	1	72	24.600	ppb	#REF!	3.38	2000.00	>RL
60	Ni	1	72	43.400	ppb	#REF!	3.35	2000.00	>RL
63	Cu	1	72	23.640	ppb	#REF!	2.53	2000.00	>RL
66	Zn	1	72	180.500	ppb	#REF!	2.67	2000.00	>RL
75	As	1	72	21.630	ppb	#REF!	2.86	2000.00	>RL
78	Se	1	72	12.820	ppb	#REF!	4.66	2000.00	>RL
88	Sr	2	115	516.800	ppb	#REF!	1.98	2000.00	>RL
95	Mo	2	115	1.507	ppb	#REF!	1.66	2000.00	ND
107	Ag	2	115	0.196	ppb	#REF!	11.31	500.00	ND
111	Cd	2	115	1.232	ppb	#REF!	11.84	2000.00	>RL
118	Sn	2	115	5.944	ppb	#REF!	2.65	2000.00	ND
121	Sb	2	115	0.426	ppb	#REF!	11.69	500.00	ND
137	Ba	2	115	496.300	ppb	#REF!	2.09	2000.00	>RL
205	Tl	2	209	0.651	ppb	#REF!	1.54	2000.00	ND
208	Pb	2	209	37.670	ppb	#REF!	1.32	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-12092.00	4.26	36.77	-32885.9	70 - 120	ISFail
45	Sc	1	115039.65	1.19	157844.06	72.9	70 - 120	
45	Sc	2	4565483.00	3.30	5827273.50	78.3	70 - 120	
72	Ge	1	61693.75	0.94	86621.49	71.2	70 - 120	
115	In	2	4026384.00	1.37	6276207.00	64.2	70 - 120	ISFail
209	Bi	2	2721643.00	0.82	4446753.50	61.2	70 - 120	ISFail

Sample QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\144SMPL.D\144SMPL.D#

Date Acquired:	Aug 11 2016 01:35 am	Sample Name:	**1607317-37A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD1
Operator:	KL	Bench Diln:	5
Last Cal. Update:	Aug 10 2016 01:05 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	108.900	ppb	#REF!	0.99	2000.00	>RL
9	Be	2	45	2.041	ppb	#REF!	2.70	2000.00	>RL
11	B	2	45	141.200	ppb	#REF!	1.78	2000.00	>RL
23	Na	1	45	12300.000	ppb	#REF!	2.46	25000.00	>RL
24	Mg	1	45	18440.000	ppb	#REF!	3.24	25000.00	>RL
27	Al	1	45	66250.000	ppb	#REF!	3.99	10000.00	OUTCAL
39	K	1	45	10730.000	ppb	#REF!	2.13	25000.00	>RL
44	Ca	2	45	296900.000	ppb	#REF!	1.34	25000.00	OUTCAL
47	Ti	1	45	342.800	ppb	#REF!	4.18	2000.00	>RL
51	V	1	45	130.700	ppb	#REF!	3.51	2000.00	>RL
52	Cr	1	45	56.280	ppb	#REF!	3.26	2000.00	>RL
55	Mn	1	45	378.000	ppb	#REF!	3.64	2000.00	>RL
56	Fe	1	72	64560.000	ppb	#REF!	3.66	10000.00	OUTCAL
59	Co	1	72	24.580	ppb	#REF!	3.65	2000.00	>RL
60	Ni	1	72	36.630	ppb	#REF!	2.52	2000.00	>RL
63	Cu	1	72	15.580	ppb	#REF!	3.19	2000.00	>RL
66	Zn	1	72	142.000	ppb	#REF!	3.56	2000.00	>RL
75	As	1	72	21.930	ppb	#REF!	1.93	2000.00	>RL
78	Se	1	72	10.560	ppb	#REF!	7.06	2000.00	>RL
88	Sr	2	115	765.800	ppb	#REF!	1.01	2000.00	>RL
95	Mo	2	115	1.897	ppb	#REF!	8.02	2000.00	ND
107	Ag	2	115	0.108	ppb	#REF!	10.92	500.00	ND
111	Cd	2	115	0.997	ppb	#REF!	3.95	2000.00	J
118	Sn	2	115	5.748	ppb	#REF!	1.18	2000.00	ND
121	Sb	2	115	0.434	ppb	#REF!	5.66	500.00	ND
137	Ba	2	115	414.500	ppb	#REF!	0.48	2000.00	>RL
205	Tl	2	209	0.501	ppb	#REF!	9.63	2000.00	ND
208	Pb	2	209	33.520	ppb	#REF!	0.25	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-13245.41	1.99	36.77	-36022.7	70 - 120	ISFail
45	Sc	1	110246.88	1.22	157844.06	69.8	70 - 120	ISFail
45	Sc	2	4374743.50	1.35	5827273.50	75.1	70 - 120	
72	Ge	1	58901.55	1.30	86621.49	68.0	70 - 120	ISFail
115	In	2	3993814.00	0.78	6276207.00	63.6	70 - 120	ISFail
209	Bi	2	2646671.80	0.55	4446753.50	59.5	70 - 120	ISFail

Sample QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\145SMPL.D\145SMPL.D#

Date Acquired:	Aug 11 2016 01:40 am	Sample Name:	**1607317-38A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TSDOD1
Operator:	KL	Bench Diln:	5
Last Cal. Update:	Aug 10 2016 01:05 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	129.200	ppb	#REF!	2.44	2000.00	>RL
9	Be	2	45	2.080	ppb	#REF!	2.25	2000.00	>RL
11	B	2	45	144.400	ppb	#REF!	3.12	2000.00	>RL
23	Na	1	45	11000.000	ppb	#REF!	0.34	25000.00	>RL
24	Mg	1	45	18010.000	ppb	#REF!	0.66	25000.00	>RL
27	Al	1	45	67380.000	ppb	#REF!	1.92	10000.00	OUTCAL
39	K	1	45	10570.000	ppb	#REF!	0.27	25000.00	>RL
44	Ca	2	45	239500.000	ppb	#REF!	2.69	25000.00	OUTCAL
47	Ti	1	45	264.000	ppb	#REF!	3.90	2000.00	>RL
51	V	1	45	118.700	ppb	#REF!	0.75	2000.00	>RL
52	Cr	1	45	60.740	ppb	#REF!	1.68	2000.00	>RL
55	Mn	1	45	335.600	ppb	#REF!	1.08	2000.00	>RL
56	Fe	1	72	61240.000	ppb	#REF!	1.23	10000.00	OUTCAL
59	Co	1	72	21.940	ppb	#REF!	0.49	2000.00	>RL
60	Ni	1	72	30.190	ppb	#REF!	1.70	2000.00	>RL
63	Cu	1	72	12.680	ppb	#REF!	0.80	2000.00	>RL
66	Zn	1	72	133.300	ppb	#REF!	1.95	2000.00	>RL
75	As	1	72	20.280	ppb	#REF!	1.24	2000.00	>RL
78	Se	1	72	10.250	ppb	#REF!	6.46	2000.00	>RL
88	Sr	2	115	792.800	ppb	#REF!	1.55	2000.00	>RL
95	Mo	2	115	2.326	ppb	#REF!	3.38	2000.00	J
107	Ag	2	115	0.117	ppb	#REF!	7.88	500.00	ND
111	Cd	2	115	0.890	ppb	#REF!	6.51	2000.00	J
118	Sn	2	115	6.114	ppb	#REF!	0.51	2000.00	ND
121	Sb	2	115	0.202	ppb	#REF!	7.14	500.00	ND
137	Ba	2	115	542.900	ppb	#REF!	1.18	2000.00	>RL
205	Tl	2	209	0.486	ppb	#REF!	5.84	2000.00	ND
208	Pb	2	209	27.030	ppb	#REF!	0.91	2000.00	>RL

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-18050.72	1.57	36.77	-49091.4	70 - 120	ISFail
45	Sc	1	114623.88	1.73	157844.06	72.6	70 - 120	
45	Sc	2	4739574.50	2.40	5827273.50	81.3	70 - 120	
72	Ge	1	62337.64	2.01	86621.49	72.0	70 - 120	
115	In	2	4338113.50	1.24	6276207.00	69.1	70 - 120	ISFail
209	Bi	2	2874578.50	0.80	4446753.50	64.6	70 - 120	ISFail

PDS QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\147_PDS.D\147_PDS.D#

Date Acquired:	Aug 11 2016 01:52 am	Sample Name:	**1607317-27A PDS**
Acq. Method:	DHL_3Fe.M	Misc Info:	PDS ICPMS_TSDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	Aug 10 2016 01:05 pm	Auto Diln:	Undiluted
Instrument:	ICPMS3	Total Diln:	5.00

QC Elements

Element				Conc.		RSD(%)	Ref Conc	Spike	Range	Rec(%)	Flag
7	Li	2	45	267.00	ppb	1.65	-41710.06	200	75-125	######	Fail
9	Be	2	45	173.50	ppb	1.91	2.32	200	75-125	85.6	
11	B	2	45	217.60	ppb	2.05	56.74	200	75-125	80.4	
23	Na	1	45	7659.00	ppb	1.77	2146.00	5000	75-125	110.3	
24	Mg	1	45	19900.00	ppb	3.73	13730.00	5000	75-125	123.4	
27	Al	1	45	84980.00	ppb	4.87	75820.00	5000	75-125	183.2	Fail
39	K	1	45	22650.00	ppb	2.81	15520.00	5000	75-125	142.6	Fail
44	Ca	2	45	61490.00	ppb	1.99	52160.00	5000	75-125	186.6	Fail
47	Ti	1	45	409.70	ppb	2.36	202.90	200	75-125	103.4	
51	V	1	45	302.60	ppb	2.84	96.82	200	75-125	102.9	
52	Cr	1	45	263.40	ppb	3.44	59.33	200	75-125	102.0	
55	Mn	1	45	806.20	ppb	3.10	572.40	200	75-125	116.9	
56	Fe	1	72	77190.00	ppb	3.17	66040.00	5000	75-125	223.0	Fail
59	Co	1	72	220.70	ppb	2.58	23.38	200	75-125	98.7	
60	Ni	1	72	228.70	ppb	2.45	37.95	200	75-125	95.4	
63	Cu	1	72	208.50	ppb	2.61	22.50	200	75-125	93.0	
66	Zn	1	72	402.20	ppb	2.24	207.40	200	75-125	97.4	
75	As	1	72	214.10	ppb	2.82	23.43	200	75-125	95.3	
78	Se	1	72	189.90	ppb	1.85	13.08	200	75-125	88.4	
88	Sr	2	115	626.30	ppb	1.07	344.30	200	75-125	141.0	Fail
95	Mo	2	115	212.40	ppb	1.42	1.79	200	75-125	105.3	
107	Ag	2	115	188.60	ppb	1.47	0.28	200	75-125	94.2	
111	Cd	2	115	185.10	ppb	1.14	1.13	200	75-125	92.0	
118	Sn	2	115	202.80	ppb	1.31	5.58	200	75-125	98.6	
121	Sb	2	115	196.10	ppb	1.14	4.91	200	75-125	95.6	
137	Ba	2	115	542.20	ppb	0.72	334.90	200	75-125	103.7	
205	Tl	2	209	192.70	ppb	0.60	0.78	200	75-125	96.0	
208	Pb	2	209	410.40	ppb	0.71	188.00	200	75-125	111.2	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	-41710.06	0.74	36.77	-113436.3	70	-	120	ISFail
45	Sc	1	121423.96	1.02	157844.06	76.9	70	-	120	
45	Sc	2	4688560.50	2.06	5827273.50	80.5	70	-	120	
72	Ge	1	64344.19	0.92	86621.49	74.3	70	-	120	
115	In	2	4008963.80	1.37	6276207.00	63.9	70	-	120	ISFail
209	Bi	2	2737126.00	0.61	4446753.50	61.6	70	-	120	ISFail

MS/MSD QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\148_MS.D\148_MS.D#

Date Acquired:	Aug 11 2016 01:58 am	Sample Name:	**1607317-27A MS**
Acq. Method:	DHL_3Fe.M	Misc Info:	MS ICPMS_TSDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	Aug 10 2016 01:05 pm	Auto Diln:	Undiluted
Instrument:	ICPMS3	Total Diln:	5.00

QC Elements

Element				Conc.		RSD(%)	Ref Conc	Spike	Range	Rec(%)	Flag
7	Li	2	45	273.90	ppb	1.85	########	200	80-120	######	Fail
9	Be	2	45	177.00	ppb	1.77	2.32	200	80-120	87.3	
11	B	2	45	224.00	ppb	2.02	56.74	200	80-120	83.6	
23	Na	1	45	7854.00	ppb	1.69	2146.00	5000	80-120	114.2	
24	Mg	1	45	20730.00	ppb	2.31	13730.00	5000	80-120	140.0	Fail
27	Al	1	45	87760.00	ppb	2.78	75820.00	1000	80-120	1194.0	Fail
39	K	1	45	23740.00	ppb	0.55	15520.00	5000	80-120	164.4	Fail
44	Ca	2	45	59630.00	ppb	2.58	52160.00	5000	80-120	149.4	Fail
47	Ti	1	45	482.50	ppb	2.15	202.90	200	80-120	139.8	Fail
51	V	1	45	316.30	ppb	2.93	96.82	200	80-120	109.7	
52	Cr	1	45	269.00	ppb	3.22	59.33	200	80-120	104.8	
55	Mn	1	45	806.50	ppb	2.54	572.40	200	80-120	117.0	
56	Fe	1	72	76600.00	ppb	2.98	66040.00	1000	80-120	1056.0	Fail
59	Co	1	72	228.60	ppb	2.46	23.38	200	80-120	102.6	
60	Ni	1	72	235.80	ppb	2.30	37.95	200	80-120	98.9	
63	Cu	1	72	219.20	ppb	1.88	22.50	200	80-120	98.4	
66	Zn	1	72	419.00	ppb	2.18	207.40	200	80-120	105.8	
75	As	1	72	222.90	ppb	2.00	23.43	200	80-120	99.7	
78	Se	1	72	196.20	ppb	0.96	13.08	200	80-120	91.6	
88	Sr	2	115	755.60	ppb	0.85	344.30	200	80-120	205.7	Fail
95	Mo	2	115	208.00	ppb	1.46	1.79	200	80-120	103.1	
107	Ag	2	115	194.20	ppb	1.58	0.28	200	80-120	97.0	
111	Cd	2	115	194.00	ppb	1.19	1.13	200	80-120	96.4	
118	Sn	2	115	209.20	ppb	1.17	5.58	200	80-120	101.8	
121	Sb	2	115	74.89	ppb	1.17	4.91	200	80-120	35.0	Fail
137	Ba	2	115	554.70	ppb	0.90	334.90	200	80-120	109.9	
205	Tl	2	209	201.10	ppb	1.22	0.78	200	80-120	100.2	
208	Pb	2	209	719.70	ppb	1.35	188.00	200	80-120	265.9	Fail

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-61257.54	1.34	36.77	########	70 - 120	ISFail
45	Sc	1	118607.66	0.19	157844.06	75.1	70 - 120	
45	Sc	2	4539775.00	1.83	5827273.50	77.9	70 - 120	
72	Ge	1	62980.31	0.66	86621.49	72.7	70 - 120	
115	In	2	3899716.50	1.12	6276207.00	62.1	70 - 120	ISFail
209	Bi	2	2707252.50	0.85	4446753.50	60.9	70 - 120	ISFail

MS/MSD QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\149_MS.D\149_MS.D#

Date Acquired:	Aug 11 2016 02:04 am	Sample Name:	**1607317-27A MSD**
Acq. Method:	DHL_3Fe.M	Misc Info:	MSD ICPMS_TSDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	Aug 10 2016 01:05 pm	Auto Diln:	Undiluted
Instrument:	ICPMS3	Total Diln:	5.00

QC Elements

Element				Conc.		RSD(%)	Ref Conc	Spike	Range	Rec(%)	Flag
7	Li	2	45	254.50	ppb	1.19	########	200	80-120	######	Fail
9	Be	2	45	169.60	ppb	1.49	2.32	200	80-120	83.6	
11	B	2	45	208.50	ppb	1.98	56.74	200	80-120	75.9	Fail
23	Na	1	45	7422.00	ppb	2.19	2146.00	5000	80-120	105.5	
24	Mg	1	45	18870.00	ppb	2.25	13730.00	5000	80-120	102.8	
27	Al	1	45	78910.00	ppb	3.13	75820.00	1000	80-120	309.0	Fail
39	K	1	45	21960.00	ppb	2.38	15520.00	5000	80-120	128.8	Fail
44	Ca	2	45	51140.00	ppb	2.46	52160.00	5000	80-120	-20.4	Fail
47	Ti	1	45	453.70	ppb	2.47	202.90	200	80-120	125.4	Fail
51	V	1	45	298.40	ppb	1.60	96.82	200	80-120	100.8	
52	Cr	1	45	256.60	ppb	2.26	59.33	200	80-120	98.6	
55	Mn	1	45	743.70	ppb	1.87	572.40	200	80-120	85.6	
56	Fe	1	72	66890.00	ppb	2.49	66040.00	1000	80-120	85.0	
59	Co	1	72	219.90	ppb	1.79	23.38	200	80-120	98.3	
60	Ni	1	72	226.70	ppb	1.66	37.95	200	80-120	94.4	
63	Cu	1	72	210.50	ppb	1.19	22.50	200	80-120	94.0	
66	Zn	1	72	394.50	ppb	1.57	207.40	200	80-120	93.6	
75	As	1	72	218.40	ppb	1.62	23.43	200	80-120	97.5	
78	Se	1	72	193.50	ppb	2.07	13.08	200	80-120	90.2	
88	Sr	2	115	607.10	ppb	1.45	344.30	200	80-120	131.4	Fail
95	Mo	2	115	202.50	ppb	1.64	1.79	200	80-120	100.4	
107	Ag	2	115	188.80	ppb	1.79	0.28	200	80-120	94.3	
111	Cd	2	115	189.20	ppb	1.88	1.13	200	80-120	94.0	
118	Sn	2	115	203.60	ppb	1.80	5.58	200	80-120	99.0	
121	Sb	2	115	74.01	ppb	1.41	4.91	200	80-120	34.6	Fail
137	Ba	2	115	536.50	ppb	1.02	334.90	200	80-120	100.8	
205	Tl	2	209	196.70	ppb	1.10	0.78	200	80-120	98.0	
208	Pb	2	209	625.80	ppb	0.93	188.00	200	80-120	218.9	Fail

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-56722.36	0.54	36.77	########	70 - 120	ISFail
45	Sc	1	118827.66	0.62	157844.06	75.3	70 - 120	
45	Sc	2	4419396.50	2.53	5827273.50	75.8	70 - 120	
72	Ge	1	63089.75	0.46	86621.49	72.8	70 - 120	
115	In	2	3814919.50	0.92	6276207.00	60.8	70 - 120	ISFail
209	Bi	2	2663219.50	0.85	4446753.50	59.9	70 - 120	ISFail

CCV QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\150CCV1.D\150CCV1.D#

Date Acquired:	Aug 11 2016 02:10 am	Sample Name:	**CCV6-160810**
Acq. Method:	DHL_3Fe.M	Misc Info:	CCV ICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 10 2016 01:05 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	205.40	ppb	1.33	200.00	90 -	110	102.7	
9	Be	2	45	189.30	ppb	0.57	200.00	90 -	110	94.7	
11	B	2	45	171.10	ppb	0.44	200.00	90 -	110	85.6	Fail
23	Na	1	45	5643.00	ppb	3.00	5000.00	90 -	110	112.9	Fail
24	Mg	1	45	5337.00	ppb	3.67	5000.00	90 -	110	106.7	
27	Al	1	45	5385.00	ppb	3.61	5000.00	90 -	110	107.7	
39	K	1	45	5506.00	ppb	0.64	5000.00	90 -	110	110.1	Fail
44	Ca	2	45	5760.00	ppb	0.87	5000.00	90 -	110	115.2	Fail
47	Ti	1	45	206.80	ppb	5.45	200.00	90 -	110	103.4	
51	V	1	45	207.60	ppb	3.53	200.00	90 -	110	103.8	
52	Cr	1	45	208.20	ppb	3.58	200.00	90 -	110	104.1	
55	Mn	1	45	211.90	ppb	3.31	200.00	90 -	110	106.0	
56	Fe	1	72	5265.00	ppb	3.99	5000.00	90 -	110	105.3	
59	Co	1	72	204.20	ppb	3.04	200.00	90 -	110	102.1	
60	Ni	1	72	198.50	ppb	3.57	200.00	90 -	110	99.3	
63	Cu	1	72	203.40	ppb	2.98	200.00	90 -	110	101.7	
66	Zn	1	72	210.50	ppb	3.03	200.00	90 -	110	105.3	
75	As	1	72	210.20	ppb	2.77	200.00	90 -	110	105.1	
78	Se	1	72	208.40	ppb	1.66	200.00	90 -	110	104.2	
88	Sr	2	115	252.30	ppb	0.55	200.00	90 -	110	126.2	Fail
95	Mo	2	115	231.70	ppb	1.02	200.00	90 -	110	115.9	Fail
107	Ag	2	115	212.50	ppb	0.97	200.00	90 -	110	106.3	
111	Cd	2	115	207.00	ppb	0.25	200.00	90 -	110	103.5	
118	Sn	2	115	206.10	ppb	0.54	200.00	90 -	110	103.1	
121	Sb	2	115	204.70	ppb	0.94	200.00	90 -	110	102.4	
137	Ba	2	115	205.20	ppb	0.10	200.00	90 -	110	102.6	
205	Tl	2	209	200.90	ppb	0.12	200.00	90 -	110	100.5	
208	Pb	2	209	202.10	ppb	0.09	200.00	90 -	110	101.1	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	-50194.16	1.59	36.77	-136509.9	70 -	120		ISFail
45	Sc	1	116261.23	0.18	157844.06	73.7	70 -	120		
45	Sc	2	4258000.50	1.15	5827273.50	73.1	70 -	120		
72	Ge	1	63651.25	0.27	86621.49	73.5	70 -	120		
115	In	2	3531460.00	0.23	6276207.00	56.3	70 -	120		ISFail
209	Bi	2	2622581.80	0.69	4446753.50	59.0	70 -	120		ISFail

CCV QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\152LCVL.D\152LCVL.D#

Date Acquired:	Aug 11 2016 02:22 am	Sample Name:	**LCVL-160810**
Acq. Method:	DHL_3Fe.M	Misc Info:	LCVLICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 10 2016 01:05 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	9.97	ppb	1.83	10.00	70 -	130	99.7	
9	Be	2	45	0.96	ppb	3.06	1.00	70 -	130	96.2	
11	B	2	45	18.29	ppb	1.87	20.00	70 -	130	91.5	
23	Na	1	45	100.00	ppb	2.02	100.00	70 -	130	100.0	
24	Mg	1	45	112.30	ppb	2.09	100.00	70 -	130	112.3	
27	Al	1	45	125.70	ppb	4.22	100.00	70 -	130	125.7	
39	K	1	45	120.50	ppb	3.05	100.00	70 -	130	120.5	
44	Ca	2	45	111.90	ppb	9.17	100.00	70 -	130	111.9	
47	Ti	1	45	5.38	ppb	16.48	5.00	70 -	130	107.7	
51	V	1	45	1.18	ppb	3.27	1.00	70 -	130	118.4	
52	Cr	1	45	5.54	ppb	4.23	5.00	70 -	130	110.8	
55	Mn	1	45	5.50	ppb	4.33	5.00	70 -	130	109.9	
56	Fe	1	72	123.40	ppb	3.50	100.00	70 -	130	123.4	
59	Co	1	72	5.28	ppb	3.16	5.00	70 -	130	105.5	
60	Ni	1	72	5.10	ppb	2.38	5.00	70 -	130	102.0	
63	Cu	1	72	5.26	ppb	4.66	5.00	70 -	130	105.2	
66	Zn	1	72	5.84	ppb	8.62	5.00	70 -	130	116.7	
75	As	1	72	5.33	ppb	3.62	5.00	70 -	130	106.6	
78	Se	1	72	5.72	ppb	1.59	5.00	70 -	130	114.5	
88	Sr	2	115	6.05	ppb	2.70	5.00	70 -	130	120.9	
95	Mo	2	115	5.55	ppb	1.83	5.00	70 -	130	110.9	
107	Ag	2	115	2.20	ppb	3.25	2.00	70 -	130	109.9	
111	Cd	2	115	1.08	ppb	5.25	1.00	70 -	130	108.0	
118	Sn	2	115	5.23	ppb	1.32	5.00	70 -	130	104.7	
121	Sb	2	115	2.13	ppb	3.23	2.00	70 -	130	106.5	
137	Ba	2	115	5.21	ppb	1.93	5.00	70 -	130	104.2	
205	Tl	2	209	1.23	ppb	4.01	1.00	70 -	130	122.6	
208	Pb	2	209	1.12	ppb	5.44	1.00	70 -	130	111.6	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	-1538.31	4.09	36.77	-4183.7	70 -	120		ISFail
45	Sc	1	112526.34	1.11	157844.06	71.3	70 -	120		
45	Sc	2	4205417.50	4.05	5827273.50	72.2	70 -	120		
72	Ge	1	62249.54	1.83	86621.49	71.9	70 -	120		
115	In	2	3610795.80	3.69	6276207.00	57.5	70 -	120		ISFail
209	Bi	2	2723052.00	3.22	4446753.50	61.2	70 -	120		ISFail

CCB QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\153_CCB.D\153_CCB.D#

Date Acquired:	Aug 11 2016 02:28 am	Sample Name:	**CCB6-160810**
Acq. Method:	DHL_3Fe.M	Misc Info:	CCB ICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 10 2016 01:05 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	MDL S	MDL Aq	Flag
7	Li	2	45	0.152	ppb	8.84	2.00	2.00	
9	Be	2	45	0.052	ppb	13.57	0.40	0.30	
11	B	2	45	1.840	ppb	2.23	10.00	10.00	
23	Na	1	45	-6.216	ppb	3.71	50.00	#####	
24	Mg	1	45	3.115	ppb	6.08	50.00	#####	
27	Al	1	45	14.400	ppb	4.61	50.00	10.00	FailAq
39	K	1	45	10.100	ppb	3.52	50.00	#####	
44	Ca	2	45	28.190	ppb	10.12	50.00	#####	
47	Ti	1	45	-0.007	ppb	34.64	4.00	3.00	
51	V	1	45	0.051	ppb	3.74	4.00	3.00	
52	Cr	1	45	0.033	ppb	3.46	2.00	2.00	
55	Mn	1	45	0.165	ppb	10.60	2.00	3.00	
56	Fe	1	72	5.592	ppb	5.66	50.00	30.00	
59	Co	1	72	0.056	ppb	7.94	2.00	3.00	
60	Ni	1	72	0.137	ppb	10.04	2.00	3.00	
63	Cu	1	72	0.099	ppb	8.51	2.00	2.00	
66	Zn	1	72	1.595	ppb	15.95	4.00	2.00	
75	As	1	72	-0.052	ppb	5.78	2.00	2.00	
78	Se	1	72	0.121	ppb	12.49	0.60	2.00	
88	Sr	2	115	0.208	ppb	8.92	4.00	3.00	
95	Mo	2	115	0.100	ppb	12.65	2.00	2.00	
107	Ag	2	115	0.057	ppb	16.66	0.40	1.00	
111	Cd	2	115	0.018	ppb	68.71	0.40	0.30	
118	Sn	2	115	0.104	ppb	7.21	20.00	3.00	
121	Sb	2	115	0.062	ppb	13.66	2.00	0.80	
137	Ba	2	115	0.166	ppb	6.44	2.00	3.00	
205	Tl	2	209	0.153	ppb	5.46	2.00	0.50	
208	Pb	2	209	0.102	ppb	12.44	0.40	0.30	

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	RHigh	-27.08	62.99	36.77	-73.7	70 - 120	ISFail
45	Sc	1		118991.57	1.04	157844.06	75.4	70 - 120	
45	Sc	2		4196573.50	2.04	5827273.50	72.0	70 - 120	
72	Ge	1		65588.79	0.94	86621.49	75.7	70 - 120	
115	In	2		3586732.50	0.96	6276207.00	57.1	70 - 120	ISFail
209	Bi	2		2712654.30	0.77	4446753.50	61.0	70 - 120	ISFail

CCV QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\165CCV1.D\165CCV1.D#

Date Acquired:	Aug 11 2016 03:40 am	Sample Name:	**CCV7-160810**
Acq. Method:	DHL_3Fe.M	Misc Info:	CCV ICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 10 2016 01:05 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	189.40	ppb	1.03	200.00	90 -	110	94.7	
9	Be	2	45	175.00	ppb	0.53	200.00	90 -	110	87.5	Fail
11	B	2	45	150.60	ppb	0.35	200.00	90 -	110	75.3	Fail
23	Na	1	45	5452.00	ppb	3.11	5000.00	90 -	110	109.0	
24	Mg	1	45	5136.00	ppb	3.97	5000.00	90 -	110	102.7	
27	Al	1	45	5166.00	ppb	4.28	5000.00	90 -	110	103.3	
39	K	1	45	5421.00	ppb	2.08	5000.00	90 -	110	108.4	
44	Ca	2	45	5668.00	ppb	1.11	5000.00	90 -	110	113.4	Fail
47	Ti	1	45	199.90	ppb	5.44	200.00	90 -	110	100.0	
51	V	1	45	206.00	ppb	3.79	200.00	90 -	110	103.0	
52	Cr	1	45	204.90	ppb	3.91	200.00	90 -	110	102.5	
55	Mn	1	45	208.20	ppb	4.27	200.00	90 -	110	104.1	
56	Fe	1	72	5130.00	ppb	3.87	5000.00	90 -	110	102.6	
59	Co	1	72	200.20	ppb	3.47	200.00	90 -	110	100.1	
60	Ni	1	72	195.20	ppb	2.77	200.00	90 -	110	97.6	
63	Cu	1	72	199.40	ppb	2.95	200.00	90 -	110	99.7	
66	Zn	1	72	210.60	ppb	4.45	200.00	90 -	110	105.3	
75	As	1	72	211.60	ppb	2.91	200.00	90 -	110	105.8	
78	Se	1	72	205.60	ppb	3.09	200.00	90 -	110	102.8	
88	Sr	2	115	245.00	ppb	0.78	200.00	90 -	110	122.5	Fail
95	Mo	2	115	226.10	ppb	0.52	200.00	90 -	110	113.1	Fail
107	Ag	2	115	204.60	ppb	0.59	200.00	90 -	110	102.3	
111	Cd	2	115	202.50	ppb	0.36	200.00	90 -	110	101.3	
118	Sn	2	115	201.50	ppb	0.74	200.00	90 -	110	100.8	
121	Sb	2	115	203.10	ppb	0.30	200.00	90 -	110	101.6	
137	Ba	2	115	200.90	ppb	0.82	200.00	90 -	110	100.5	
205	Tl	2	209	196.60	ppb	0.44	200.00	90 -	110	98.3	
208	Pb	2	209	197.40	ppb	0.64	200.00	90 -	110	98.7	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	-39824.36	2.91	36.77	-108307.8	70 -	120		ISFail
45	Sc	1	95158.43	0.62	157844.06	60.3	70 -	120		ISFail
45	Sc	2	3598345.00	0.95	5827273.50	61.8	70 -	120		ISFail
72	Ge	1	52385.56	0.64	86621.49	60.5	70 -	120		ISFail
115	In	2	3080674.30	0.32	6276207.00	49.1	70 -	120		ISFail
209	Bi	2	2287627.30	0.52	4446753.50	51.4	70 -	120		ISFail

CCV QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\167LCVL.D\167LCVL.D#

Date Acquired:	Aug 11 2016 03:52 am	Sample Name:	**LCVL7-160810**
Acq. Method:	DHL_3Fe.M	Misc Info:	LCVLICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 10 2016 01:05 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	9.42	ppb	0.85	10.00	70 -	130	94.2	
9	Be	2	45	0.89	ppb	3.28	1.00	70 -	130	88.7	
11	B	2	45	16.57	ppb	1.76	20.00	70 -	130	82.9	
23	Na	1	45	90.96	ppb	1.51	100.00	70 -	130	91.0	
24	Mg	1	45	106.80	ppb	4.63	100.00	70 -	130	106.8	
27	Al	1	45	115.10	ppb	6.15	100.00	70 -	130	115.1	
39	K	1	45	121.30	ppb	2.12	100.00	70 -	130	121.3	
44	Ca	2	45	115.60	ppb	3.18	100.00	70 -	130	115.6	
47	Ti	1	45	4.26	ppb	11.53	5.00	70 -	130	85.2	
51	V	1	45	1.00	ppb	1.63	1.00	70 -	130	100.0	
52	Cr	1	45	5.25	ppb	6.12	5.00	70 -	130	105.1	
55	Mn	1	45	5.45	ppb	3.71	5.00	70 -	130	109.1	
56	Fe	1	72	117.20	ppb	6.40	100.00	70 -	130	117.2	
59	Co	1	72	4.97	ppb	2.46	5.00	70 -	130	99.4	
60	Ni	1	72	5.09	ppb	3.07	5.00	70 -	130	101.9	
63	Cu	1	72	4.97	ppb	1.95	5.00	70 -	130	99.4	
66	Zn	1	72	5.27	ppb	9.03	5.00	70 -	130	105.5	
75	As	1	72	5.17	ppb	1.96	5.00	70 -	130	103.4	
78	Se	1	72	5.71	ppb	1.80	5.00	70 -	130	114.2	
88	Sr	2	115	6.11	ppb	1.48	5.00	70 -	130	122.2	
95	Mo	2	115	5.79	ppb	3.13	5.00	70 -	130	115.9	
107	Ag	2	115	2.17	ppb	5.38	2.00	70 -	130	108.6	
111	Cd	2	115	0.99	ppb	6.72	1.00	70 -	130	99.2	
118	Sn	2	115	5.17	ppb	0.92	5.00	70 -	130	103.5	
121	Sb	2	115	2.09	ppb	1.94	2.00	70 -	130	104.6	
137	Ba	2	115	5.04	ppb	3.36	5.00	70 -	130	100.7	
205	Tl	2	209	1.06	ppb	3.25	1.00	70 -	130	106.1	
208	Pb	2	209	1.09	ppb	2.39	1.00	70 -	130	109.1	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	-1094.09	4.54	36.77	-2975.5	70 -	120		ISFail
45	Sc	1	99179.54	0.99	157844.06	62.8	70 -	120		ISFail
45	Sc	2	3406155.80	1.46	5827273.50	58.5	70 -	120		ISFail
72	Ge	1	55142.63	0.79	86621.49	63.7	70 -	120		ISFail
115	In	2	2814354.00	0.76	6276207.00	44.8	70 -	120		ISFail
209	Bi	2	2211154.00	0.67	4446753.50	49.7	70 -	120		ISFail

CCB QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\168_CCB.D\168_CCB.D#

Date Acquired:	Aug 11 2016 03:58 am	Sample Name:	**CCB7-160810**
Acq. Method:	DHL_3Fe.M	Misc Info:	CCB ICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 10 2016 01:05 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	MDL S	MDL Aq	Flag
7	Li	2	45	0.147	ppb	2.21	2.00	2.00	
9	Be	2	45	0.022	ppb	16.36	0.40	0.30	
11	B	2	45	1.560	ppb	3.46	10.00	10.00	
23	Na	1	45	-4.759	ppb	1.61	50.00	#####	
24	Mg	1	45	3.644	ppb	15.70	50.00	#####	
27	Al	1	45	12.450	ppb	15.84	50.00	10.00	FailAq
39	K	1	45	13.340	ppb	3.48	50.00	#####	
44	Ca	2	45	31.800	ppb	6.58	50.00	#####	
47	Ti	1	45	0.054	ppb	49.99	4.00	3.00	
51	V	1	45	-0.001	ppb	5.72	4.00	3.00	
52	Cr	1	45	0.054	ppb	10.14	2.00	2.00	
55	Mn	1	45	0.182	ppb	15.80	2.00	3.00	
56	Fe	1	72	6.676	ppb	15.79	50.00	30.00	
59	Co	1	72	0.052	ppb	14.06	2.00	3.00	
60	Ni	1	72	0.129	ppb	12.29	2.00	3.00	
63	Cu	1	72	0.068	ppb	11.49	2.00	2.00	
66	Zn	1	72	1.303	ppb	5.76	4.00	2.00	
75	As	1	72	-0.046	ppb	1.17	2.00	2.00	
78	Se	1	72	0.190	ppb	25.13	0.60	2.00	
88	Sr	2	115	0.199	ppb	7.55	4.00	3.00	
95	Mo	2	115	0.072	ppb	36.20	2.00	2.00	
107	Ag	2	115	0.058	ppb	6.93	0.40	1.00	
111	Cd	2	115	0.018	ppb	110.53	0.40	0.30	
118	Sn	2	115	0.085	ppb	26.56	20.00	3.00	
121	Sb	2	115	0.062	ppb	9.33	2.00	0.80	
137	Ba	2	115	0.114	ppb	6.00	2.00	3.00	
205	Tl	2	209	0.113	ppb	14.29	2.00	0.50	
208	Pb	2	209	0.072	ppb	6.03	0.40	0.30	

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	RHigh	-16.38	103.31	36.77	-44.5	70 - 120	ISFail
45	Sc	1		95675.22	1.47	157844.06	60.6	70 - 120	ISFail
45	Sc	2		3322419.80	1.76	5827273.50	57.0	70 - 120	ISFail
72	Ge	1		53121.97	0.89	86621.49	61.3	70 - 120	ISFail
115	In	2		2816927.80	0.80	6276207.00	44.9	70 - 120	ISFail
209	Bi	2		2198136.80	0.60	4446753.50	49.4	70 - 120	ISFail

ICP-MS4
For

DHL Work Order
1607317

ICP-MS4_160811D
For

DHL Work Order
1607317

Lab Data Review Check List
EPA Method 6020 / 6020A / 200.8 - Trace Metals by ICP-MS

PROJECT AND BATCH NUMBERS ARE LISTED ON THE RUN LOG	Run ID: ICP-MS4_160811D SOP: MET-ICPMS-01			
Review Item	**Yes**	**No**	**N/A**	**2nd Level Review**
Data Folder Contents 1. Is the Prep Batch Report included? ***Check the Prep Start/End Dates, Sample Amounts, Bottle #s***	X			
2. Are the reagents and spikes listed on the Prep Batch Report current with a valid expiration date? ***All standard/QC sample preparations shall be documented in LIMS***	X			x
3. Is the Run Log and instrument sequence included? ***Check the Test Code, Sample Type, Batch ID, and Analysis Date/Time***	X			

Daily Demonstration of Performance

QC items that do not meet method/SOP/project requirements will be described on the run log. All variances that impact data quality will be described in the Variance/Comment Section on page 2.

Review Item	Frequency	Limits	Pass	Fail (List Batch/Sample) **See Run Log**		2nd Level Review
Tune	Before ICAL	RSD ≤ 5% / Peak Width@10% <0.9amu	X			
P/A Factor	Before ICAL	Increasing trend	X			x
Initial Calibration Curve (ICAL) (Blank + 4 Standards)	Prior to samples and when ICV fails	R ≥ 0.995 (DoD) R ≥ 0.998 (6020A)	X			
Review Item	**Frequency**	**Limits**	**Pass**	**Fail**	**N/A**	**Review**
ICSA (N/A for Method 200.8+U)	After calibration & every 12 hours	< RL (except Mn & Zn)	X			x
ICSAB (N/A for Method 200.8+U)	After calibration & every 12 hours	80-120% (correct for ICSA result)	X			
Note: LCVLs and ICSA/ICSAB are N/A for Method 200.8 or project-specific exceptions						
ICV (Second Source Verification)	After ICAL	90-110%	X			
ICB	After calibration	< MDL	X			
CCV	Every 10 samples	90-110%	X			
CCB	Every 10 samples	< MDL (ALL + DoD)	X			
Internal Standards	Every sample and QC sample	> 70% (6020A) 60-125% (200.8) 30-120% (DoD)	X			
LCVL (6020A test code)	After ICAL, every 10 samples and end of run	70-130%			X	
LCVL (All metals test codes except 200.8/6020A)	After ICAL and end of run	70-130%	X			x
Method Blank (MB)	Every Batch	< MDL / <½ RL (DoD) or <1/10 the sample/reg limit	X			
Filter/TCLP/SPLP Blank	Filter-Dissolved only TCLP / SPLP	< MDL / <½ RL (DoD) or <1/10 the sample/reg limit			X	
Lab Control Sample (LCS)	Every Batch	80-120%	X			
Lab Control Sample Dup (LCSD)	Every Batch	80-120%	X			
LCSD - RPD	Every LCS/LCSD	15 (H2O) / 20 (Soil)	X			
Matrix Spike/ Matrix Spike Duplicate (MS/MSD)	Every Batch	80-120%		X		
MSD - RPD	Every MS/MSD	15 (H2O) / 20 (Soil)	X			
Dilution Test (SD) - RPD	Every Batch	10	X			
Post Digestion Spike (PDS)	Every Batch	75-125 / 80-120 (6020A)	X			

Lab Data Review Check List
EPA Method 6020 / 6020A / 200.8 - Trace Metals by ICP-MS

Review Item	Criteria	Yes	No	N/A	2nd Level Review
Sample Analysis 1. Are all sample hold times met?	6 months	X			x
2. Are all samples with concentrations > the highest standard used for calibration diluted and reanalyzed?	All results > high point of ICAL must be diluted			X	
3. Are ALL reported analytes and reported results > MDL highlighted by the analyst?		X	**Confirm with analyst if LIMS result does not match Labcore**		

VARIANCE REPORT

QC items that do not meet method/SOP/project requirements will be described on the run log. All variances that impact data quality will be described in this section.

NON-CONFORMANCES / VARIANCE	Criteria	Yes	No	N/A	2nd Level
1. Are all non-conformances and corrective actions included and noted?	All deviations from the method and SOP that affect data quality	X			x
2. Does the variance require approval by the Technical Director/General Manager/QA Manager?		X			

TECHNICAL DIRECTOR / QA MANAGER APPROVAL SIGNATURE AND DATE STAMP: ***QA APPROVED*** *By John DuPont at 10:46:11 AM, 8/18/2016*

Description and Corrective Actions of QC items that do not meet method/SOP/project requirements:

****INCLUDE VARIANCE ITEM / REASON / CORRECTIVE ACTION / IMPACT ON DATA****

VARIANCE ITEM	REASON	CORRECTIVE ACTION
__ CCV out of control (± 10%)	__ Carryover from previous run	__ Reanalyze QC to confirm
__ CCB out of control (> MDL / >½ RL)	__ Cross contamination	__ Recalibrate
__ MB out of control (> RL / >½ RL)	__ Lab Artifact	__ Reprep/Reanalyze sample
__ LCS __ LCSD out of control (± 20%)	__ Prep Spike error (describe)	__ Reprep/Reanalyze Batch
__ MS __ MSD out of control (± 20%)	__ Matrix Effect	__ Reanalyze Batch/Sample/QC
__ RPD out of control for MS/MSD (15/25)	__ High Levels of Target Metals	__ Verify reagents are clean
__ Internal Standard(s) out of control (see Method)	__ Insufficient sample for QC	__ Reanalyze sample to confirm
__ No MS/MSD prepared - LCS/LCSD used instead	__ Digestion/Prep Error	__ Sample results ND w/ dilution
__ Missing QC (other than MS/MSD)	__ Analytical Error	__ Client notified and approved
__ QC sample(s) was mis-spiked	__ Client Request	__ Flag Data/ Case Narative
__ ICSA/ICSAB missing or out of control (± 20%)		__ Accept data
__ LCVL out of control (± 30%)		__ Cal Std high and sample ND
__ Other (describe below)	__ Other (describe below)	__ Other (describe below)

General Comments and Impact on Data:

1607317-27A MS/MSD S -flag Pb- High; Verified thru rerun; Client approved as per JD.

Analyst: _____ Date of Completion: 08/12/2016

Second-Level Review: Janice Whitt Date Stamp: 8/18/2016

REVIEWED BY *By Janice Whitt at 10:29:19 AM, 8/18/2016*

DHL Analytical, Inc.

Run ID: **ICP-MS4_160811D** **Run No.:** 87573

Analytical Run Date: 8/11/2016 **InstrumentID:** ICP-MS4

Analyst: Ryan Oliver

SampID	DF	TestCode	SampType	Batch ID	Analysis Date/Time	Q	Comments
BLANK STD 1	1	ICPMS_TWDOD	CAL	R87573	8/11/2016 1:52:00 PM		
L2-160811	1	ICPMS_TWDOD	CAL	R87573	8/11/2016 1:54:00 PM		
L-160811	1	ICPMS_TWDOD	CAL	R87573	8/11/2016 1:56:00 PM		
10X-160811	1	ICPMS_TWDOD	CAL	R87573	8/11/2016 1:58:00 PM		
5X-160811	1	ICPMS_TWDOD	CAL	R87573	8/11/2016 2:00:00 PM		
2X-160811	1	ICPMS_TWDOD	CAL	R87573	8/11/2016 2:02:00 PM		
H-160811	1	ICPMS_TWDOD	CAL	R87573	8/11/2016 2:04:00 PM		
H2-160811	1	ICPMS_TWDOD	CAL	R87573	8/11/2016 2:06:00 PM		
ICSA-160811	1	ICPMS_TWDOD	ICSA	R87573	8/11/2016 2:12:00 PM		
ICSAB-160811	1	ICPMS_TWDOD	ICSB	R87573	8/11/2016 2:14:00 PM		
ICV-160811	1	ICPMS_TWDOD	ICV	R87573	8/11/2016 2:20:00 PM		
LCVL-160811	1	ICPMS_TWDOD	LCVL	R87573	8/11/2016 2:25:00 PM		
ICB-160811	1	ICPMS_TWDOD	ICB	R87573	8/11/2016 2:29:00 PM		
CCV2-160811	1	ICPMS_TWDOD	CCV	R87573	8/11/2016 3:57:00 PM		
LCVL2-160811	1	ICPMS_TWDOD	LCVL	R87573	8/11/2016 4:08:00 PM		
CCB2-160811	1	ICPMS_TWDOD	CCB	R87573	8/11/2016 4:22:00 PM		
1607317-27A	5	ICPMS_TSDOD1	SAMP	76717	8/11/2016 4:24:00 PM		
1607317-27A SD	25	ICPMS_TSDOD1	SD	76717	8/11/2016 4:26:00 PM		
1607317-27A PDS	5	ICPMS_TSDOD1	PDS	76717	8/11/2016 4:28:00 PM		
1607317-27A MS	5	ICPMS_TSDOD1	MS	76717	8/11/2016 4:30:00 PM		S -flag Pb- High; Client approved as per JD
1607317-27A MSD	5	ICPMS_TSDOD1	MSD	76717	8/11/2016 4:32:00 PM		S -flag Pb- High; Client approved as per JD
CCV3-160811	1	ICPMS_TWDOD	CCV	R87573	8/11/2016 4:34:00 PM		
LCVL3-160811	1	ICPMS_TWDOD	LCVL	R87573	8/11/2016 4:44:00 PM		
CCB3-160811	1	ICPMS_TWDOD	CCB	R87573	8/11/2016 4:46:00 PM		
CCV4-160811	1	ICPMS_TWDOD	CCV	R87573	8/11/2016 4:52:00 PM		
LCVL4-160811	1	ICPMS_TWDOD	LCVL	R87573	8/11/2016 4:58:00 PM		
CCB4-160811	1	ICPMS_TWDOD	CCB	R87573	8/11/2016 5:00:00 PM		
MB-76748	5	ICPMS_TSDOD1	MBLK	76748	8/11/2016 5:02:00 PM		
LCS-76748	5	ICPMS_TSDOD1	LCS	76748	8/11/2016 5:04:00 PM		
LCSD-76748	5	ICPMS_TSDOD1	LCSD	76748	8/11/2016 5:06:00 PM		

Std ID	Std Name	Type	Exp. Date
MET-CCV-160804	ICPMS CCV 200/5000 PPB		02/02/2017
MET-H2CAL-1608	ICPMS High Cal2 2000ppb std 8		02/02/2017
MET-HCAL-16080	ICPMS High Cal 500ppb/10ppm s		02/02/2017
MET-ICV-160804	ICPMS ICV 100 ppb		02/02/2017
MET-IS-160630	INTERNAL STANDARD 1 PPM		12/28/2016
MET-L2CAL-16080	ICPMS Low Cal2 1/20ppb std 2		02/02/2017
MET-LCAL-160804	ICPMS Low Cal 10/200ppb std 3		02/02/2017
MET-LCAL10X-16	ICPMS Low Cal 10/200ppb std 4		02/02/2017
MET-LCAL5X-160	ICPMS Low Cal 10/200ppb std 5		02/02/2017
MET-LCVLSPIKE-	LCVL METALS SPIKE (100/500		11/07/2016
MET-MCAL-16080	ICPMS Mid Cal 250/5000ppb std		02/02/2017
MET-PA-160421	ICPMS PA FACTOR SOLUTION		10/20/2016
MET-PDS-160701-	10 PPM Ag+Sb PDS		01/01/2017
MET-PDS-160701-	10 PPM CUSTOM PDS SOLUTI		01/01/2017
MET-PDS-160701-	250 PPM Naturals+Al+Fe PDS		07/01/2017

Run ID: ICP-MS4_160811D **Run No.:** 87573

1607337-10A	5	ICPMS_TSDOD1	SAMP	76748	8/11/2016 5:10:00 PM		
1607337-10A SD	25	ICPMS_TSDOD1	SD	76748	8/11/2016 5:12:00 PM		
1607337-14A	5	ICPMS_TSDOD1	SAMP	76748	8/11/2016 5:14:00 PM		
1607337-15A	5	ICPMS_TSDOD1	SAMP	76748	8/11/2016 5:16:00 PM		
1607337-16A	5	ICPMS_TSDOD1	SAMP	76748	8/11/2016 5:18:00 PM		
1607337-17A	5	ICPMS_TSDOD1	SAMP	76748	8/11/2016 5:20:00 PM		
1607337-18A	5	ICPMS_TSDOD1	SAMP	76748	8/11/2016 5:22:00 PM		
1607337-19A	5	ICPMS_TSDOD1	SAMP	76748	8/11/2016 5:24:00 PM		
1607337-20A	5	ICPMS_TSDOD1	SAMP	76748	8/11/2016 5:26:00 PM		
1607337-21A	5	ICPMS_TSDOD1	SAMP	76748	8/11/2016 5:28:00 PM		
1607337-22A	5	ICPMS_TSDOD1	SAMP	76748	8/11/2016 5:30:00 PM		
1607337-10A PDS	5	ICPMS_TSDOD1	PDS	76748	8/11/2016 5:32:00 PM		
1607337-10A MS	5	ICPMS_TSDOD1	MS	76748	8/11/2016 5:34:00 PM		
1607337-10A MSD	5	ICPMS_TSDOD1	MSD	76748	8/11/2016 5:36:00 PM		
CCV5-160811	1	ICPMS_TWDOD	CCV	R87573	8/11/2016 5:38:00 PM		
LCVL5-160811	1	ICPMS_TWDOD	LCVL	R87573	8/11/2016 5:42:00 PM		
CCB5-160811	1	ICPMS_TWDOD	CCB	R87573	8/11/2016 5:44:00 PM		
1607337-23A	5	ICPMS_TSDOD1	SAMP	76748	8/11/2016 5:46:00 PM		
1607337-24A	5	ICPMS_TSDOD1	SAMP	76748	8/11/2016 5:48:00 PM		
1607337-25A	5	ICPMS_TSDOD1	SAMP	76748	8/11/2016 5:50:00 PM		
1608019-01A	5	ICPMS_TSDOD1	SAMP	76748	8/11/2016 5:52:00 PM		
1608019-02A	5	ICPMS_TSDOD1	SAMP	76748	8/11/2016 5:54:00 PM		
1608019-03A	5	ICPMS_TSDOD1	SAMP	76748	8/11/2016 5:56:00 PM		
1608019-04A	5	ICPMS_TSDOD1	SAMP	76748	8/11/2016 5:58:00 PM		
1608019-05A	5	ICPMS_TSDOD1	SAMP	76748	8/11/2016 6:00:00 PM		
1608019-06A	5	ICPMS_TSDOD1	SAMP	76748	8/11/2016 6:02:00 PM		
CCV6-160811	1	ICPMS_TWDOD	CCV	R87573	8/11/2016 6:04:00 PM		
LCVL6-160811	1	ICPMS_TWDOD	LCVL	R87573	8/11/2016 6:08:00 PM		
CCB6-160811	1	ICPMS_TWDOD	CCB	R87573	8/11/2016 6:10:00 PM		
MB-76774	1	ICPMS_TWDOD	MBLK	76774	8/11/2016 6:12:00 PM		
LCS-76774	1	ICPMS_TWDOD	LCS	76774	8/11/2016 6:14:00 PM		
LCSD-76774	1	ICPMS_TWDOD	LCSD	76774	8/11/2016 6:16:00 PM		
1607317-39A	1	ICPMS_TWDOD	SAMP	76774	8/11/2016 6:20:00 PM		
1607317-39A SD	5	ICPMS_TWDOD	SD	76774	8/11/2016 6:22:00 PM		
1607317-39A PDS	1	ICPMS_TWDOD	PDS	76774	8/11/2016 6:24:00 PM		

Std ID	Std Name	Type	Exp. Date
MET-CCV-160804	ICPMS CCV 200/5000 PPB		02/02/2017
MET-H2CAL-1608	ICPMS High Cal2 2000ppb std 8		02/02/2017
MET-HCAL-16080	ICPMS High Cal 500ppb/10ppm s		02/02/2017
MET-ICV-160804	ICPMS ICV 100 ppb		02/02/2017
MET-IS-160630	INTERNAL STANDARD 1 PPM		12/28/2016
MET-L2CAL-16080	ICPMS Low Cal2 1/20ppb std 2		02/02/2017
MET-LCAL-160804	ICPMS Low Cal 10/200ppb std 3		02/02/2017
MET-LCAL10X-16	ICPMS Low Cal 10/200ppb std 4		02/02/2017
MET-LCAL5X-160	ICPMS Low Cal 10/200ppb std 5		02/02/2017
MET-LCVLSPIKE-	LCVL METALS SPIKE (100/500		11/07/2016
MET-MCAL-16080	ICPMS Mid Cal 250/5000ppb std		02/02/2017
MET-PA-160421	ICPMS PA FACTOR SOLUTION		10/20/2016
MET-PDS-160701-	10 PPM Ag+Sb PDS		01/01/2017
MET-PDS-160701-	10 PPM CUSTOM PDS SOLUTI		01/01/2017
MET-PDS-160701-	250 PPM Naturals+Al+Fe PDS		07/01/2017

DHL Analytical, Inc.

Run ID: ICP-MS4_160811D **Run No.:** 87573

CCV7-160811	1	ICPMS_TWDOD	CCV	R87573	8/11/2016 6:26:00 PM		
LCVL7-160811	1	ICPMS_TWDOD	LCVL	R87573	8/11/2016 6:30:00 PM		
CCB7-160811	1	ICPMS_TWDOD	CCB	R87573	8/11/2016 6:47:00 PM		

Std ID	Std Name	Type	Exp. Date
MET-CCV-160804	ICPMS CCV 200/5000 PPB		02/02/2017
MET-H2CAL-1608	ICPMS High Cal2 2000ppb std 8		02/02/2017
MET-HCAL-16080	ICPMS High Cal 500ppb/10ppm s		02/02/2017
MET-ICV-160804	ICPMS ICV 100 ppb		02/02/2017
MET-IS-160630	INTERNAL STANDARD 1 PPM		12/28/2016
MET-L2CAL-16080	ICPMS Low Cal2 1/20ppb std 2		02/02/2017
MET-LCAL-160804	ICPMS Low Cal 10/200ppb std 3		02/02/2017
MET-LCAL10X-16	ICPMS Low Cal 10/200ppb std 4		02/02/2017
MET-LCAL5X-160	ICPMS Low Cal 10/200ppb std 5		02/02/2017
MET-LCVLSPIKE-	LCVL METALS SPIKE (100/500		11/07/2016
MET-MCAL-16080	ICPMS Mid Cal 250/5000ppb std		02/02/2017
MET-PA-160421	ICPMS PA FACTOR SOLUTION		10/20/2016
MET-PDS-160701-	10 PPM Ag+Sb PDS		01/01/2017
MET-PDS-160701-	10 PPM CUSTOM PDS SOLUTI		01/01/2017
MET-PDS-160701-	250 PPM Naturals+Al+Fe PDS		07/01/2017

Sample List

Batch Folder C:\Agilent\ICPMH\1\DATA\160811.b

Acquisition Order

#	Sequence Flow
1	Calibration Standards
2	Unknown Samples
3	Blank Samples

Calibration Standards:

#	Sample Type	Sample Name	Comment	Level	Vial#	Dilution
1	CCB		CAL ICPMS_TW		1101	
2	CCB		CAL ICPMS_TW		1101	
3	CCB		CAL ICPMS_TW		1101	
4	CCB		CAL ICPMS_TW		1102	
5	CCB		CAL ICPMS_TW		1102	
6	CCB		CAL ICPMS_TW		1102	
7	CCB		CAL ICPMS_TW		1102	
8	CCB		CAL ICPMS_TW		1103	
9	CCB		CAL ICPMS_TW		1103	
10	CCB		CAL ICPMS_TW		1103	
11	CCB		CAL ICPMS_TW		1103	
12	CalBlk	BLANK STD 1	CAL ICPMS_TW	1	2101	
13	CalStd	L2-160811	CAL ICPMS_TW	2	2102	
14	CalStd	L-160811	CAL ICPMS_TW	3	2103	
15	CalStd	10X-160811	CAL ICPMS_TW	4	2104	
16	CalStd	5X-160811	CAL ICPMS_TW	5	2105	
17	CalStd	2X-160811	CAL ICPMS_TW	6	2106	
18	CalStd	H-160811	CAL ICPMS_TW	7	2107	
19	CalStd	H2-160811	CAL ICPMS_TW	8	2108	
20	ICB	BLANK	CCB ICPMS_TW		1101	

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Sample List

#	Sample Type	Sample Name	Comment	Level	Vial#	Dilution
21	ICB	BLANK	CCB ICPMS_TW		1102	
22	ICSA	ICSA-160811	ICSAICPMS_TW		2109	
23	ICSB	ICSAB-160811	ICSBICPMS_TW		2110	
24	ICB	BLANK	CCB ICPMS_TW		1101	
25	ICB	BLANK	CCB ICPMS_TW		1102	
26	ICV	ICV-160811	ICV ICPMS_TW		2111	
27	ICB	ICB-160811	ICB ICPMS_TW		1101	
28	LLICV	LCVL-160811	LCVLICPMS_TW		2112	
29	ICB	ICB-160811	ICB ICPMS_TW		1102	
30	ICB	ICB-160811	ICB ICPMS_TW		1103	
31	PB_W	MB-76749	MBLK200.8		2201	1
32	LCS_200	LCS-76749	LCS 200.8		2202	1
33	LCS_200	LCSD-76749	LCSD200.8		2203	1
34	CCB	RINSE	CCB ICPMS_TW		1101	
35	AllRef	1608076-01A	SAMP200.8		2204	1
36	SD	1608076-01A SD	SD 200.8		2205	5
37	SAMP_W	1608085-01A	SAMP200.8		2206	1
38	SAMP_W	1608084-01A	SAMP200.8		2207	1
39	SAMP_W	1608077-01A	SAMP200.8		2208	1
40	SAMP_W	1608078-01A	SAMP200.8		2209	1

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#	Sample Type	Sample Name	Comment	Level	Vial#	Dilution
41	SAMP_W	1608078-02A	SAMP200.8		2210	1
42	SAMP_W	1608089-01A	SAMP200.8		2211	1
43	SAMP_W	1608089-02A	SAMP200.8		2212	1
44	PDS	1608076-01A PDS	PDS 200.8		2301	1
45	CCB	RINSE	CCB ICPMS_TW		1103	
46	CCB	RINSE	CCB ICPMS_TW		1103	
47	SAMP_W	1608089-01A	SAMP200.8		2211	1

Sample List

48	SAMP_W	1608089-02A	SAMP200.8		2212	1
49	PDS	1608076-01A PDS	PDS 200.8		2301	1
50	MS_W	1608076-01A MS	MS 200.8		2302	1
51	MS_W	1608076-01A MSD	MSD 200.8		2303	1
52	CCV	CCV1-160811	CCV ICPMS_TW		1207	
53	CCB	CCB1-160811	CCB ICPMS_TW		1102	
54	LLCCV	LCVL1-160811	LCVLICPMS_TW		2112	
55	CCB	CCB1-160811	CCB ICPMS_TW		1103	
56	PB_W	MB-76758	MBLKTCLP_MET		2401	1
57	PB_W	MB-76738-SPLP	MBLKSPLP_MET		2402	1
58	LCS_S	LCS-76758	LCS TCLP_MET		2403	1
59	LCS_S	LCSD-76758	LCSDTCLP_MET		2404	1
60	CCB	RINSE	CCB ICPMS_TW		1101	

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#	Sample Type	Sample Name	Comment	Level	Vial#	Dilution
61	AllRef	1608040-01A	SAMPTCLP_MET		2405	1
62	SD	1608040-01A SD	SD TCLP		2406	5
63	SAMP_W	1608075-02A	SAMPSPLP_MET		2407	1
64	SAMP_W	1608075-04A	SAMPSPLP_MET		2408	1
65	SAMP_W	1608075-05A	SAMPSPLP_MET		2409	1
66	SAMP_W	1608075-07A	SAMPSPLP_MET		2410	1
67	PDS	1608040-01A PDS	PDS TCLP_MET		2411	1
68	MS_W	1608040-01A MS	MS TCLP_MET		2412	1
69	MS_W	1608040-01A MSD	MSD TCLP_MET		2501	1
70	CCV	CCV2-160811	CCV ICPMS_TW		1207	
71	CCB	CCB2-160811	CCB ICPMS_TW		1102	
72	LLCCV	LCVL2-160811	LCVLICPMS_TW		2112	
73	CCB	CCB2-160811	CCB ICPMS_TW		1103	
74	PB	MB-62591	MBLKICPMS_TSDOD		3101	5
75	Sample	PAINT CHIPS AW-13	SAMPICPMS_TSDOD		3102	50
76	LCS_S	LCS-62591	LCS ICPMS_TSDOD		3103	5

Sample List

77	LCS_S	LCSD-62591	LCSDICPMS_TSDOD		3104	5
78	CCB	RINSE	CCB ICPMS_TW		1101	
79	AllRef	1403262-06A	SAMPICPMS_TSDOD		3105	5
80	SD	1403262-06A SD	SD ICPMS_TSDOD		3106	25

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#	Sample Type	Sample Name	Comment	Level	Vial#	Dilution
81	Sample	1403262-02A	SAMPICPMS_TSDOD		3107	5
82	Sample	1403262-03A	SAMPICPMS_TSDOD		3108	5
83	Sample	1403262-04A	SAMPICPMS_TSDOD		3109	5
84	Sample	1403262-05A	SAMPICPMS_TSDOD		3110	5
85	Sample	1403262-07A	SAMPICPMS_TSDOD		3111	5
86	Sample	1403262-08A	SAMPICPMS_TSDOD		3112	5
87	Sample	1403262-09A	SAMPICPMS_TSDOD		3201	5
88	Sample	1403262-10A	SAMPICPMS_TSDOD		3202	5
89	Sample	1403262-11A	SAMPICPMS_TSDOD		3203	5
90	PDS	1403262-06A PDS	PDS ICPMS_TSDOD		3204	5
91	MS_S	1403262-06A MS	MS ICPMS_TSDOD		3205	5
92	MS_S	1403262-06A MSD	MSD ICPMS_TSDOD		3206	5
93	CCV	CCV3-140402	CCV ICPMS_TW		1207	
94	CCB	CCB3-140402	CCB ICPMS_TW		1102	
95	LLCCV	LCVL3-140402	LCVLICPMS_TW		2512	
96	CCB	CCB3-140402	CCB ICPMS_TW		1103	
97	Sample	1403262-12A	SAMPICPMS_TSDOD		3207	5
98	Sample	1403262-13A	SAMPICPMS_TSDOD		3208	5
99	Sample	1403262-14A	SAMPICPMS_TSDOD		3209	5
100	Sample	1403263-01A	SAMPICPMS_TSDOD		3210	5

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81	Skip
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Sample List

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#	Sample Type	Sample Name	Comment	Level	Vial#	Dilution
101	Sample	1403263-02A	SAMPICPMS_TSDOD		3211	5
102	Sample	1403263-03A	SAMPICPMS_TSDOD		3212	5
103	Sample	1403263-04A	SAMPICPMS_TSDOD		3301	5
104	Sample	1403263-05A	SAMPICPMS_TSDOD		3302	5
105	Sample	1403263-06A	SAMPICPMS_TSDOD		3303	5
106	Sample	1403263-07A	SAMPICPMS_TSDOD		3304	5
107	CCV	CCV4-140402	CCV ICPMS_TW		1207	
108	CCB	CCB4-140402	CCB ICPMS_TW		1102	
109	LLCCV	LCVL4-140402	LCVLICPMS_TW		2512	
110	CCB	CCB4-140402	CCB ICPMS_TW		1103	
111	PB	MB-62609	MBLKICPMS_TSDOD		3401	5
112	Sample	PAINT CHIPS AW-13	SAMPICPMS_TSDOD		3402	50
113	LCS_S	LCS-62609	LCS ICPMS_TSDOD		3403	5
114	LCS_S	LCSD-62609	LCSDICPMS_TSDOD		3404	5
115	CCB	RINSE	CCB ICPMS_TW		1101	
116	AllRef	1403264-10A	SAMPICPMS_TSDOD		3405	5
117	SD	1403264-10A SD	SD ICPMS_TSDOD		3406	25
118	Sample	1403263-08A	SAMPICPMS_TSDOD		3407	5
119	Sample	1403263-09A	SAMPICPMS_TSDOD		3408	5
120	Sample	1403264-01A	SAMPICPMS_TSDOD		3409	5

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101	Skip
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Sample List

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#	Sample Type	Sample Name	Comment	Level	Vial#	Dilution
121	Sample	1403264-02A	SAMPICPMS_TSDOD		3410	5
122	Sample	1403264-03A	SAMPICPMS_TSDOD		3411	5
123	Sample	1403264-04A	SAMPICPMS_TSDOD		3412	5
124	Sample	1403264-05A	SAMPICPMS_TSDOD		3501	5
125	Sample	1403264-06A	SAMPICPMS_TSDOD		3502	5
126	Sample	1403264-07A	SAMPICPMS_TSDOD		3503	5
127	PDS	1403264-10A PDS	PDS ICPMS_TSDOD		3504	5
128	MS_S	1403264-10A MS	MS ICPMS_TSDOD		3505	5
129	MS_S	1403264-10A MSD	MSD ICPMS_TSDOD		3506	5
130	CCV	CCV5-140402	CCV ICPMS_TW		1207	
131	CCB	CCB5-140402	CCB ICPMS_TW		1102	
132	LLCCV	LCVL5-140402	LCVLICPMS_TW		2511	
133	CCB	CCB5-140402	CCB ICPMS_TW		1103	
134	Sample	1403264-08A	SAMPICPMS_TSDOD		3507	5
135	Sample	1403264-09A	SAMPICPMS_TSDOD		3508	5
136	Sample	1403264-11A	SAMPICPMS_TSDOD		3509	5
137	Sample	1403264-12A	SAMPICPMS_TSDOD		3510	5
138	Sample	1403264-13A	SAMPICPMS_TSDOD		3511	5
139	Sample	1403264-14A	SAMPICPMS_TSDOD		3512	5
140	Sample	1403264-15A	SAMPICPMS_TSDOD		3310	5

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121	Skip
122	Skip
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138	Skip
139	Skip
140	Skip

Sample List

#	Sample Type	Sample Name	Comment	Level	Vial#	Dilution
141	Sample	1403264-16A	SAMPICPMS_TSDOD		3311	5
142	Sample	1403264-17A	SAMPICPMS_TSDOD		3312	5
143	Sample	1403264-12A	SAMPICPMS_TSDOD		3510	5
144	CCV	CCV6-140402	CCV ICPMS_TW		1207	
145	CCB	CCB6-140402	CCB ICPMS_TW		1102	
146	LLCCV	LCVL6-140402	LCVLICPMS_TW		2511	
147	CCB	CCB6-140402	CCB ICPMS_TW		1103	
148	CCB	CCB6-140402	CCB ICPMS_TW		1102	
149	CCB	CCB6-140402	CCB ICPMS_TW		1102	

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141	Skip
142	Skip
143	Skip
144	Skip
145	Skip
146	Skip
147	Skip
148	Skip
149	Skip

Unknown Samples:

Blank Samples:

Periodic Block

#	Block Name	Period	Unit	Reset By

Sublist

Sample List

Batch Folder C:\Agilent\ICPMH\1\DATA\160811.b

Acquisition Order

#	Sequence Flow
1	Calibration Standards
2	Unknown Samples
3	Blank Samples

Calibration Standards:

#	Sample Type	Sample Name	Comment	Level	Vial#	Dilution
1	CCB		CAL ICPMS_TW		1101	
2	CCB		CAL ICPMS_TW		1101	
3	CCB		CAL ICPMS_TW		1101	
4	CCB		CAL ICPMS_TW		1102	
5	CCB		CAL ICPMS_TW		1102	
6	CCB		CAL ICPMS_TW		1102	
7	CCB		CAL ICPMS_TW		1102	
8	CCB		CAL ICPMS_TW		1103	
9	CCB		CAL ICPMS_TW		1103	
10	CCB		CAL ICPMS_TW		1103	
11	CCB		CAL ICPMS_TW		1103	
12	CalBlk	BLANK STD 1	CAL ICPMS_TW	1	2101	
13	CalStd	L2-160811	CAL ICPMS_TW	2	2102	
14	CalStd	L-160811	CAL ICPMS_TW	3	2103	
15	CalStd	10X-160811	CAL ICPMS_TW	4	2104	
16	CalStd	5X-160811	CAL ICPMS_TW	5	2105	
17	CalStd	2X-160811	CAL ICPMS_TW	6	2106	
18	CalStd	H-160811	CAL ICPMS_TW	7	2107	
19	CalStd	H2-160811	CAL ICPMS_TW	8	2108	
20	ICB	BLANK	CCB ICPMS_TW		1101	

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1	Skip
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Sample List

#	Sample Type	Sample Name	Comment	Level	Vial#	Dilution
21	ICB	BLANK	CCB ICPMS_TW		1102	
22	ICSA	ICSA-160811	ICSAICPMS_TW		2109	
23	ICSB	ICSAB-160811	ICSBICPMS_TW		2110	
24	ICB	BLANK	CCB ICPMS_TW		1101	
25	ICB	BLANK	CCB ICPMS_TW		1102	
26	ICV	ICV-160811	ICV ICPMS_TW		2111	
27	ICB	ICB-160811	ICB ICPMS_TW		1101	
28	LLICV	LCVL-160811	LCVLICPMS_TW		2112	
29	ICB	ICB-160811	ICB ICPMS_TW		1102	
30	ICB	ICB-160811	ICB ICPMS_TW		1103	
31	PB_W	MB-76749	MBLK200.8		2201	1
32	LCS_200	LCS-76749	LCS 200.8		2202	1
33	LCS_200	LCSD-76749	LCSD200.8		2203	1
34	CCB	RINSE	CCB ICPMS_TW		1101	
35	AllRef	1608076-01A	SAMP200.8		2204	1
36	SD	1608076-01A SD	SD 200.8		2205	5
37	SAMP_W	1608085-01A	SAMP200.8		2206	1
38	SAMP_W	1608084-01A	SAMP200.8		2207	1
39	SAMP_W	1608077-01A	SAMP200.8		2208	1
40	SAMP_W	1608078-01A	SAMP200.8		2209	1

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#	Sample Type	Sample Name	Comment	Level	Vial#	Dilution
41	SAMP_W	1608078-02A	SAMP200.8		2210	1
42	SAMP_W	1608089-01A	SAMP200.8		2211	1
43	SAMP_W	1608089-02A	SAMP200.8		2212	1
44	PDS	1608076-01A PDS	PDS 200.8		2301	1
45	CCB	RINSE	CCB ICPMS_TW		1103	
46	CCB	RINSE	CCB ICPMS_TW		1103	
47	SAMP_W	1608089-01A	SAMP200.8		2211	1

Sample List

48	SAMP_W	1608089-02A	SAMP200.8		2212	1
49	PDS	1608076-01A PDS	PDS 200.8		2301	1
50	MS_W	1608076-01A MS	MS 200.8		2302	1
51	MS_W	1608076-01A MSD	MSD 200.8		2303	1
52	CCV	CCV1-160811	CCV ICPMS_TW		1207	
53	CCB	CCB1-160811	CCB ICPMS_TW		1102	
54	LLCCV	LCVL1-160811	LCVLICPMS_TW		2112	
55	CCB	CCB1-160811	CCB ICPMS_TW		1103	
56	PB_W	MB-76758	MBLKTCLP_MET		2401	1
57	PB_W	MB-76738-SPLP	MBLKSPLP_MET		2402	1
58	LCS_S	LCS-76758	LCS TCLP_MET		2403	1
59	LCS_S	LCSD-76758	LCSDTCLP_MET		2404	1
60	CCB	RINSE	CCB ICPMS_TW		1101	

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#	Sample Type	Sample Name	Comment	Level	Vial#	Dilution
61	AllRef	1608040-01A	SAMPTCLP_MET		2405	1
62	SD	1608040-01A SD	SD TCLP		2406	5
63	SAMP_W	1608075-02A	SAMPSPLP_MET		2407	1
64	SAMP_W	1608075-04A	SAMPSPLP_MET		2408	1
65	SAMP_W	1608075-05A	SAMPSPLP_MET		2409	1
66	SAMP_W	1608075-07A	SAMPSPLP_MET		2410	1
67	PDS	1608040-01A PDS	PDS TCLP_MET		2411	1
68	MS_W	1608040-01A MS	MS TCLP_MET		2412	1
69	MS_W	1608040-01A MSD	MSD TCLP_MET		2501	1
70	CCV	CCV2-160811	CCV ICPMS_TW		1207	
71	CCB	CCB2-160811	CCB ICPMS_TW		1102	
72	LLCCV	LCVL2-160811	LCVLICPMS_TW		2112	
73	CCB	CCB2-160811	CCB ICPMS_TW		1103	
74	AllRef	1607317-27A	SAMPICPMS_TSDOD1		3101	5
75	SD	1607317-27A SD	SD ICPMS_TSDOD1		3102	25
76	PDS	1607317-27A PDS	PDS ICPMS_TSDOD1		3103	5

Sample List

77	MS_S	1607317-27A MS	MS ICPMS_TSDOD1		3104	5
78	MS_S	1607317-27A MSD	MSD ICPMS_TSDOD1		3105	5
79	CCV	CCV3-160811	CCV ICPMS_TW		1207	
80	CCB	CCB3-160811	CCB ICPMS_TW		1102	

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#	Sample Type	Sample Name	Comment	Level	Vial#	Dilution
81	LLCCV	LCVL3-160811	LCVLICPMS_TW		2512	
82	CCB	CCB3-160811	CCB ICPMS_TW		1103	
83	SAMP_W	1608059-01A	SAMP200.8		3206	1
84	SAMP_W	1608063-01A	SAMP200.8		3207	1
85	CCV	CCV4-160811	CCV ICPMS_TW		1207	
86	CCB	CCB4-160811	CCB ICPMS_TW		1102	
87	LLCCV	LCVL4-160811	LCVLICPMS_TW		2512	
88	CCB	CCB4-160811	CCB ICPMS_TW		1103	
89	PB	MB-76748	MBLKICPMS_TSDOD1		4101	5
90	LCS_S	LCS-76748	LCS ICPMS_TSDOD1		4102	5
91	LCS_S	LCSD-76748	LCSDICPMS_TSDOD1		4103	5
92	CCB	RINSE	CCB ICPMS_TW		1101	
93	AllRef	1607337-10A	SAMPICPMS_TSDOD1		4104	5
94	SD	1607337-10A SD	SD ICPMS_TSDOD1		4105	25
95	Sample	1607337-14A	SAMPICPMS_TSDOD1		4106	5
96	Sample	1607337-15A	SAMPICPMS_TSDOD1		4107	5
97	Sample	1607337-16A	SAMPICPMS_TSDOD1		4108	5
98	Sample	1607337-17A	SAMPICPMS_TSDOD1		4109	5
99	Sample	1607337-18A	SAMPICPMS_TSDOD1		4110	5
100	Sample	1607337-19A	SAMPICPMS_TSDOD1		4111	5

#	Skip
81	
82	
83	

Sample List

#	Sample Type	Sample Name	Comment	Level	Vial#	Dilution
101	Sample	1607337-20A	SAMPICPMS_TSDOD1		4112	5
102	Sample	1607337-21A	SAMPICPMS_TSDOD1		4201	5
103	Sample	1607337-22A	SAMPICPMS_TSDOD1		4202	5
104	PDS	1607337-10A PDS	PDS ICPMS_TSDOD1		4203	5
105	MS_S	1607337-10A MS	MS ICPMS_TSDOD1		4204	5
106	MS_S	1607337-10A MSD	MSD ICPMS_TSDOD1		4205	5
107	CCV	CCV5-160811	CCV ICPMS_TW		1207	
108	CCB	CCB5-160811	CCB ICPMS_TW		1102	
109	LLCCV	LCVL5-160811	LCVLICPMS_TW		2511	
110	CCB	CCB5-160811	CCB ICPMS_TW		1103	
111	Sample	1607337-23A	SAMPICPMS_TSDOD1		4206	5
112	Sample	1607337-24A	SAMPICPMS_TSDOD1		4207	5
113	Sample	1607337-25A	SAMPICPMS_TSDOD1		4208	5
114	Sample	1608019-01A	SAMPICPMS_TSDOD1		4209	5
115	Sample	1608019-02A	SAMPICPMS_TSDOD1		4210	5
116	Sample	1608019-03A	SAMPICPMS_TSDOD1		4211	5
117	Sample	1608019-04A	SAMPICPMS_TSDOD1		4212	5
118	Sample	1608019-05A	SAMPICPMS_TSDOD1		4301	5
119	Sample	1608019-06A	SAMPICPMS_TSDOD1		4302	5
120	CCV	CCV6-160811	CCV ICPMS_TW		1207	

#	Skip

Sample List

#	Sample Type	Sample Name	Comment	Level	Vial#	Dilution
121	CCB	CCB6-160811	CCB ICPMS_TW		1102	
122	LLCCV	LCVL6-160811	LCVLICPMS_TW		2511	
123	CCB	CCB6-160811	CCB ICPMS_TW		1102	
124	PB_W	MB-76774	MBLKICPMS_TWDOD		3301	1
125	LCS_W	LCS-76774	LCS ICPMS_TWDOD		3302	1
126	LCS_W	LCSD-76774	LCSDICPMS_TWDOD		3303	1
127	CCB	RINSE	CCB ICPMS_TW		1101	
128	AllRef	1607317-39A	SAMPICPMS_TWDOD		3304	1
129	SD	1607317-39A SD	SD ICPMS_TWDOD		3305	5
130	PDS	1607317-39A PDS	PDS ICPMS_TWDOD		3306	1
131	CCV	CCV7-160811	CCV ICPMS_TW		1207	
132	CCB	CCB7-160811	CCB ICPMS_TW		1102	
133	LLCCV	LCVL7-160811	LCVLICPMS_TW		2511	
134	CCB	CCB7-160811	CCB ICPMS_TW		1102	
135	CCB	CCB7-160811	CCB ICPMS_TW		1102	
136	CCB	CCB7-160811	CCB ICPMS_TW		1102	
137	CCB	CCB7-160811	CCB ICPMS_TW		1102	
138	CCB	CCB7-160811	CCB ICPMS_TW		1103	
139	CCB	CCB7-160811	CCB ICPMS_TW		1103	
140	CCB	CCB7-160811	CCB ICPMS_TW		1103	

#	Skip

Sample List

#	Sample Type	Sample Name	Comment	Level	Vial#	Dilution
141	CCB	CCB7-160811	CCB ICPMS_TW		1103	

#	Skip
141	

Unknown Samples:

Blank Samples:

Periodic Block

#	Block Name	Period	Unit	Reset By

Sublist

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **8/8/2016 2:31:10 PM**
Digestion:
Prep End Date:

Prep Batch **76717** Prep Code: **3050_IDOD** Technician: **Sydney Powers**

Prep Factor Units: **mL/g**

Equipment List
Hot Block #3
Thermometer #71
Balance #20
Pipette #P-01
Pipette#-P-09

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607317-27A	Soil		1.05	50	50.000	2 of 3	
1607317-27AMS	Soil		1.10	50	50.000	2 of 3	
1607317-27AMSD	Soil		1.06	50	50.000	2 of 3	
1607317-31A	Soil		1.06	50	50.000	1 of 1	
1607317-32A	Soil		1.14	50	50.000	1 of 1	
1607317-33A	Soil		1.01	50	50.000	1 of 1	
1607317-34A	Soil		1.16	50	50.000	1 of 1	
1607317-35A	Soil		1.01	50	50.000	1 of 1	
1607317-36A	Soil		1.03	50	50.000	1 of 1	
1607317-37A	Soil		1.04	50	50.000	1 of 1	
1607317-38A	Soil		1.04	50	50.000	1 of 1	
1607337-01A	Soil		1.05	50	50.000	1 of 1	
1607337-02A	Soil		1.02	50	50.000	1 of 1	
1607337-03A	Soil		1.08	50	50.000	1 of 1	
1607337-04A	Soil		1.02	50	50.000	1 of 1	
1607337-05A	Soil		1.04	50	50.000	1 of 1	
1607337-06A	Soil		1.04	50	50.000	1 of 1	
1607337-07A	Soil		1.05	50	50.000	1 of 1	
1607337-08A	Soil		1.03	50	50.000	1 of 1	
1607337-09A	Soil		1.14	50	50.000	1 of 1	
1607337-11A	Soil		1.06	50	50.000	1 of 1	
1607337-12A	Soil		1.08	50	50.000	1 of 1	
LCS-76717	Soil		1	50	50.000	of	
LCSD-76717	Soil		1	50	50.000	of	
MB-76717	Soil		1	50	50.000	of	

Number	Reagent Name	Amt	Units	Exp. Da
10056	Digestion Vessels	1	vessel	02/10/2026
10527	Hydrogen Peroxide, 30%	3	ml	07/09/2017
10543	Nitric Acid (Trace Metals)	10	ml	01/10/2017
10544	Hydrochloric Acid (trace metal grade)	5	ml	01/10/2017

Spk ID	Spike Name	SampType	Amt (mL or g)	Exp. Date
MET-150914-10	AL PRIMARY STD 1000 PPM	LCS/MS/MSD	0.25	10/01/2016
MET-150914-9	FE PRIMARY STD 1000 PPM	LCS/MS/MSD	0.25	10/01/2016
MET-SPIKE-160701-3	2500 PPM NATURALS SPIKE	LCS/MS/MSD	0.5	09/29/2016
MET-SPIKE-160715-4B	50 PPM Sb+Ag CAL	LCS/MS/MSD	1	10/13/2016
MET-SPIKE-160715-5B	50 PPM Custom+Sn,Ti,B,Mo,Sr CAL	LCS/MS/MSD	1	10/13/2016

7:21 - 7:31
7:32 - 9:32
9:53 - 11:53
12:10 - 12:25

8/9/16

REVIEWED BY
By Janice Whitt at 10:44:02 AM, 8/15/2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **7/28/2016 4:31:01 PM**
Digestion: **Start: 7/28/2016 4:45:00 PM / Stop: 8/1/2016 10:00:00 AM**
Prep End Date: **8/2/2016 10:00:00 AM**

Prep Batch **76551** Prep Code: **ISM2MM_PREP** Technician: **Jennifer Barker**

Prep Factor Units: mL/

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607317-01A	Soil		0	0	#Num!	1 of 1	
SS							
1607317-02A	Soil		0	0	#Num!	1 of 1	
SS							
1607317-03A	Soil		0	0	#Num!	1 of 1	
Sieve only hard clay							
1607317-04A	Soil		0	0	#Num!	1 of 1	
Sieve only hard clay							
1607317-05A	Soil		0	0	#Num!	1 of 1	
SS							
1607317-06A	Soil		0	0	#Num!	1 of 1	
SS							
1607317-07A	Soil		0	0	#Num!	1 of 1	
Sieve only hard clay							
1607317-08A	Soil		0	0	#Num!	1 of 1	
Sieve only hard clay							
1607317-09A	Soil		0	0	#Num!	of 3	
SS MS/MSD							
1607317-10A	Soil		0	0	#Num!	1 of 1	
SS							
1607317-11A	Soil		0	0	#Num!	1 of 1	
Sieve only hard clay							
1607317-12A	Soil		0	0	#Num!	1 of 1	
Sieve only hard clay							
1607317-14A	Soil		0	0	#Num!	1 of 1	
SS							

REVIEWED BY
By Janice Whitt at 10:44:15 AM, 8/15/2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **7/28/2016 4:31:01 PM**
Digestion: **Start: 7/28/2016 4:45:00 PM / Stop: 8/1/2016 10:00:00 AM**
Prep End Date: **8/2/2016 10:00:00 AM**

Prep Batch **76551** Prep Code: **ISM2MM_PREP** Technician: **Jennifer Barker**

Prep Factor Units: **mL/**

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607317-15A	Soil		0	0	#Num!	1 of 1	
SS							
1607317-16A	Soil		0	0	#Num!	1 of 1	
SS							
1607317-17A	Soil		0	0	#Num!	1 of 1	
SS							
1607317-18A	Soil		0	0	#Num!	1 of 1	
SS							
1607317-19A	Soil		0	0	#Num!	1 of 1	
SS							
1607317-20A	Soil		0	0	#Num!	1 of 1	
SS							
1607317-21A	Soil		0	0	#Num!	1 of 1	
SS							
1607317-22A	Soil		0	0	#Num!	1 of 1	
SS							
1607317-23A	Soil		0	0	#Num!	1 of 1	
SS							
1607317-24A	Soil		0	0	#Num!	1 of 1	
SS							
1607317-25A	Soil		0	0	#Num!	1 of 1	
SS							
1607317-27A	Soil		0	0	#Num!	of 3	
SS MS/MSD							
1607317-28A	Soil		0	0	#Num!	1 of 1	
SS							

REVIEWED BY
By Janice Whitt at 10:44:18 AM, 8/15/2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **7/28/2016 4:31:01 PM**
Digestion: **Start: 7/28/2016 4:45:00 PM / Stop: 8/1/2016 10:00:00 AM**
Prep End Date: **8/2/2016 10:00:00 AM**

Prep Batch **76551** Prep Code: **ISM2MM_PREP** Technician: **Jennifer Barker**

Prep Factor Units: **mL/**

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607317-29A	Soil		0	0	#Num!	1 of 1	
SS							
1607317-30A	Soil		0	0	#Num!	1 of 1	
Sieve only hard clay							
1607317-31A	Soil		0	0	#Num!	1 of 1	
SS							
1607317-32A	Soil		0	0	#Num!	1 of 1	
SS							
1607317-33A	Soil		0	0	#Num!	1 of 1	
SS							
1607317-34A	Soil		0	0	#Num!	1 of 1	
Sieve only hard clay							
1607317-35A	Soil		0	0	#Num!	1 of 1	
SS							
1607317-36A	Soil		0	0	#Num!	1 of 1	
SS							
1607317-37A	Soil		0	0	#Num!	1 of 1	
SS							
1607317-38A	Soil		0	0	#Num!	1 of 1	
Sieve only hard clay							

REVIEWED BY
By Janice Whitt at 10:44:22 AM, 8/15/2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **7/29/2016 3:00:00 PM**
Digestion: **Start: 7/29/2016 3:20:00 PM / Stop: 8/2/2016 10:15:00 AM**
Prep End Date: **8/2/2016 4:00:00 PM**

Prep Batch **76570** Prep Code: **ISM2MM_PREP** Technician: **Jennifer Barker**

Prep Factor Units: **mL/**

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607337-01A SS	Soil		0	0	#Num!	1 of 1	
1607337-02A SS	Soil		0	0	#Num!	1 of 1	
1607337-03A SS	Soil		0	0	#Num!	1 of 1	
1607337-04A SS	Soil		0	0	#Num!	1 of 1	
1607337-05A SS	Soil		0	0	#Num!	1 of 1	
1607337-06A SS	Soil		0	0	#Num!	1 of 1	
1607337-07A SS	Soil		0	0	#Num!	1 of 1	
1607337-08A SS	Soil		0	0	#Num!	1 of 1	
1607337-09A SS	Soil		0	0	#Num!	1 of 1	
1607337-10A SS MS/MSD	Soil		0	0	#Num!	of 3	
1607337-11A SS	Soil		0	0	#Num!	1 of 1	
1607337-12A SS	Soil		0	0	#Num!	1 of 1	
1607337-14A SS	Soil		0	0	#Num!	1 of 1	

REVIEWED BY
By Janice Whitt at 10:44:31 AM, 8/15/2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **7/29/2016 3:00:00 PM**
Digestion: **Start: 7/29/2016 3:20:00 PM / Stop: 8/2/2016 10:15:00 AM**
Prep End Date: **8/2/2016 4:00:00 PM**

Prep Batch **76570** Prep Code: **ISM2MM_PREP** Technician: **Jennifer Barker**

Prep Factor Units: **mL/**

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607337-15A SS	Soil		0	0	#Num!	1 of 1	
1607337-16A SS	Soil		0	0	#Num!	1 of 1	
1607337-17A SS	Soil		0	0	#Num!	1 of 1	
1607337-18A SS	Soil		0	0	#Num!	1 of 1	
1607337-19A SS	Soil		0	0	#Num!	1 of 1	
1607337-20A SS	Soil		0	0	#Num!	1 of 1	
1607337-21A SS	Soil		0	0	#Num!	1 of 1	
1607337-22A SS	Soil		0	0	#Num!	1 of 1	
1607337-23A SS	Soil		0	0	#Num!	1 of 1	
1607337-24A SS	Soil		0	0	#Num!	1 of 1	
1607337-25A SS	Soil		0	0	#Num!	1 of 1	

REVIEWED BY
By Janice Whitt at 10:44:33 AM, 8/15/2016

MECHANICAL VOLUMETRIC PIPETTE VOLUME DAILY CHECK - DOD QSM 5.0

ANALYST:	SP	**BALANCE #:**	26	
TEST DATE:	08/09/2016	**Water is at Room Temperatue (70-73°F) / (21-23°C)**		
PIPETTER LAB ID:	P-01, P-09	**WATER TEMP (°C):**	**21-23°C**	
TEST VOLUME:	See Below	**WATER DENSITY:**	0.998	(0.9980-0.9976)

REFERENCE:	DoD QSM 5.0
# of REPLICATES:	3
LABWARE TYPE:	MECHANICAL VOLUMETRIC PIPETTE
FREQUENCY:	DAILY BEFORE USE
MEAN CRITERIA:	± 2% OF NOMINAL VOLUME (VOLUME OF USE/TEST VOLUME)
RSD CRITERIA:	< 1% OF NOMINAL VOLUME (BASED ON MINIMUM OF 3 REPLICATE MEASUREMENTS)

1) RECORD ROOM AND WATER TEMPERATURE
2) TARE VESSEL ON BALANCE. ADD TEST VOLUME.
3) WEIGH 3 REPLICATES AT THE TEST VOLUME.
4) DETERMINE TOTAL WT.
5) CALCULATE VOLUME OF H2O AT °C (in mL)

% TEST VOL = Volume of H2O at °C/Test Volume * 100

%RSD = STDEV (Mean Volume)/AVERAGE (Mean Volume) *100

VOLUME OF H2O AT °C = TOTAL WT / WATER DENSITY

					BIAS	PRECISION
PIPETTE ID: P-01	**TEST VOLUME (mL)**	**TOTAL WT (g)**	**Volume of H_2O at °C**	**% TEST VOL (98-102%)**	**MEAN CRITERIA (± 2%)**	**% RSD Calculated**
1	5.00	4.9471	4.9570	99.14	PASS	RSD MUST BE ≤ 1% OF TEST VOLUME VALUE
2		4.9669	4.9769	99.54		
3		4.9539	4.9638	99.28		
AVERAGE (MEAN)		**4.956**	**4.966**	**99.32**		**0.203**
						PASS

PIPETTE ID: P-09	**TEST VOLUME (mL)**	**TOTAL WT (g)**	**Volume of H_2O at °C**	**% TEST VOL (98-102%)**	**MEAN CRITERIA (± 2%)**	**% RSD Calculated**
1	0.20	0.2026	0.2030	101.50	PASS	RSD MUST BE ≤ 1% OF TEST VOLUME VALUE
2		0.2018	0.2022	101.10		
3		0.2018	0.2022	101.10		
AVERAGE (MEAN)		**0.202**	**0.202**	**101.24**		**0.229**
						PASS

PIPETTE ID:	**TEST VOLUME (mL)**	**TOTAL WT (g)**	**Volume of H_2O at °C**	**% TEST VOL (98-102%)**	**MEAN CRITERIA (± 2%)**	**% RSD Calculated**
1						RSD MUST BE ≤ 1% OF TEST VOLUME VALUE
2						
3						
AVERAGE (MEAN)						

8/9/16
Analyst / Date

REVIEWED BY
By Janice Whitt at 10:44:10 AM, 8/15/2016
Review and Approved / Date

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **8/8/2016 2:31:10 PM**
Digestion: **Start: 8/9/2016 7:21:00 AM / Stop: 8/9/2016 12:25:00 PM**
Prep End Date: **8/9/2016 4:12:53 PM**

Prep Batch **76717** Prep Code: **3050_IDOD** Technician: **Sydney Powers**

Prep Factor Units: **mL/g**

Equipment List

- Hot Block #3
- Thermometer #71
- Balance #20
- Pipette #P-01
- Pipette#-P-09

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #		
1607317-27A	Soil		1.05	50	47.619		of	3
1607317-27A MS	Soil		1.1	50	45.455		of	
1607317-27A MSD	Soil		1.06	50	47.170		of	
1607317-27A PDS	Soil		1.05	50	47.619		of	
1607317-27A SD	Soil		1.05	50	47.619		of	
1607317-31A	Soil		1.06	50	47.170	1	of	1
1607317-32A	Soil		1.14	50	43.860	1	of	1
1607317-33A	Soil		1.01	50	49.505	1	of	1
1607317-34A	Soil		1.16	50	43.103	1	of	1
1607317-35A	Soil		1.01	50	49.505	1	of	1
1607317-36A	Soil		1.03	50	48.544	1	of	1
1607317-37A	Soil		1.04	50	48.077	1	of	1
1607317-38A	Soil		1.04	50	48.077	1	of	1
1607337-01A	Soil		1.05	50	47.619	1	of	1
1607337-02A	Soil		1.02	50	49.020	1	of	1
1607337-03A	Soil		1.08	50	46.296	1	of	1
1607337-04A	Soil		1.02	50	49.020	1	of	1
1607337-05A	Soil		1.04	50	48.077	1	of	1
1607337-06A	Soil		1.04	50	48.077	1	of	1
1607337-07A	Soil		1.05	50	47.619	1	of	1
1607337-08A	Soil		1.03	50	48.544	1	of	1
1607337-09A	Soil		1.14	50	43.860	1	of	1
1607337-11A	Soil		1.06	50	47.170	1	of	1
1607337-12A	Soil		1.08	50	46.296	1	of	1
LCS-76717	Soil		1	50	50.000		of	
LCSD-76717	Soil		1	50	50.000		of	
MB-76717	Soil		1	50	50.000		of	

Number	Reagent Name	Amt	Units	Exp. Da
10056	Digestion Vessels	1	vessel	02/10/2026
10527	Hydrogen Peroxide, 30%	3	ml	07/09/2017
10543	Nitric Acid (Trace Metals)	10	ml	01/10/2017
10544	Hydrochloric Acid (trace metal grade)	5	ml	01/10/2017

Spk ID	Spike Name	SampType	Amt (mL or g)	Exp. Date
MET-150914-10	AL PRIMARY STD 1000 PPM	LCS/MS/MSD	0.25	10/01/2016
MET-150914-9	FE PRIMARY STD 1000 PPM	LCS/MS/MSD	0.25	10/01/2016
MET-SPIKE-160701-3	2500 PPM NATURALS SPIKE	LCS/MS/MSD	0.5	09/29/2016
MET-SPIKE-160715-4B	50 PPM Sb+Ag CAL	LCS/MS/MSD	1	10/13/2016
MET-SPIKE-160715-5B	50 PPM Custom+Sn,Ti,B,Mo,Sr CAL	LCS/MS/MSD	1	10/13/2016

REVIEWED BY
By Janice Whitt at 10:44:07 AM, 8/15/2016

MECHANICAL VOLUMETRIC PIPETTE VOLUME DAILY CHECK - DOD QSM 5.0

ANALYST:	CVD	**BALANCE #:**	30	
TEST DATE:	08/10/2016	**Water is at Room Temperatue (70-73°F) / (21-23°C)**		
PIPETTER LAB ID:	See Below	**WATER TEMP (°C):**	**21-23°C**	
TEST VOLUME:	See Below	**WATER DENSITY:**	**0.998**	**(0.9980-0.9976)**

REFERENCE:	DoD QSM 5.0
# of REPLICATES:	3
LABWARE TYPE:	MECHANICAL VOLUMETRIC PIPETTE
FREQUENCY:	DAILY BEFORE USE
MEAN CRITERIA:	± 2% OF NOMINAL VOLUME (VOLUME OF USE/TEST VOLUME)
RSD CRITERIA:	< 1% OF NOMINAL VOLUME (BASED ON MINIMUM OF 3 REPLICATE MEASUREMENTS)

1) RECORD ROOM AND WATER TEMPERATURE
2) TARE VESSEL ON BALANCE. ADD TEST VOLUME.
3) WEIGH 3 REPLICATES AT THE TEST VOLUME.
4) DETERMINE TOTAL WT.
5) CALCULATE VOLUME OF H2O AT °C (in mL)

% TEST VOL = Volume of H2O at °C/Test Volume * 100

%RSD = STDEV (Mean Volume)/AVERAGE (Mean Volume) *100

VOLUME OF H2O AT °C = TOTAL WT * WATER DENSITY

					BIAS	PRECISION
PIPETTE ID: P-31	**TEST VOLUME (mL)**	**TOTAL WT (g)**	**Volume of H_2O at °C**	**% TEST VOL (98-102%)**	**MEAN CRITERIA (± 2%)**	**% RSD Calculated**
1	**4.00**	4.0017	3.9937	99.84	**PASS**	**RSD MUST BE ≤ 1% OF TEST VOLUME VALUE**
2		4.0056	3.9976	99.94		
3		4.0028	3.9948	99.87		
AVERAGE (MEAN)		**4.003**	**3.995**	**99.88**		**0.050**
						PASS

PIPETTE ID: P-21	**TEST VOLUME (mL)**	**TOTAL WT (g)**	**Volume of H_2O at °C**	**% TEST VOL (98-102%)**	**MEAN CRITERIA (± 2%)**	**% RSD Calculated**
1	**1.00**	1.0036	1.0016	100.16	**PASS**	**RSD MUST BE ≤ 1% OF TEST VOLUME VALUE**
2		1.0024	1.0004	100.04		
3		1.0013	0.9993	99.93		
AVERAGE (MEAN)		**1.002**	**1.000**	**100.04**		**0.115**
						PASS

PIPETTE ID: P-39	**TEST VOLUME (mL)**	**TOTAL WT (g)**	**Volume of H_2O at °C**	**% TEST VOL (98-102%)**	**MEAN CRITERIA (± 2%)**	**% RSD Calculated**
1	**0.500**	0.5049	0.5039	100.78	**PASS**	**RSD MUST BE ≤ 1% OF TEST VOLUME VALUE**
2		0.5051	0.5041	100.82		
3		0.5038	0.5028	100.56		
AVERAGE (MEAN)		**0.505**	**0.504**	**100.72**		**0.139**
						PASS

CVB 8/10/16
Analyst / Date

REVIEWED BY
By Janice Whitt at 10:44:40 AM, 8/15/2016
Review and Approved / Date

C:\Users\METALS\Desktop\Pipetter Accuracy Check- RO 8-9-2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **8/11/2016 10:03:28 AM**
Digestion:
Prep End Date:

Prep Batch **76774** Prep Code: **3005ADOD** Technician: **Sydney Powers**

Prep Factor Units: **mL/mL**

Equipment List

Hot Block #6
Thermometer #71
Pipette #P-09-Spikes
Pipette #P-01 Samples

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607317-39A	Equip Blank		50	50	1.000	1 of 1	
LCS-76774	Aqueous		50	50	1.000	of	
LCSD-76774	Aqueous		50	50	1.000	of	
MB-76774	Aqueous		50	50	1.000	of	

Number	Reagent Name	Amt	Units	Exp. Da
10056	Digestion Vessels	1	ml	02/10/2026
10543	Nitric Acid (Trace Metals)	1	ml	01/10/2017
10544	Hydrochloric Acid (trace metal grade)	1	ml	01/10/2017

Spk ID	Spike Name	SampType	Amt (mL or g)	Exp. Date
MET-150914-10	AL PRIMARY STD 1000 PPM	LCS/MS/MSD	0.25	10/01/2016
MET-150914-9	FE PRIMARY STD 1000 PPM	LCS/MS/MSD	0.25	10/01/2016
MET-SPIKE-160701-3	2500 PPM NATURALS SPIKE	LCS/MS/MSD	0.1	09/29/2016
MET-SPIKE-160715-4B	50 PPM Sb+Ag CAL	LCS/MS/MSD	0.2	10/13/2016
MET-SPIKE-160715-5B	50 PPM Custom+Sn,Ti,B,Mo,Sr CAL	LCS/MS/MSD	0.2	10/13/2016

10:12 - 16:27

8/11/16

REVIEWED BY
By Janice Whitt at 10:16:42 AM, 8/18/2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **8/11/2016 10:03:28 AM**
Digestion: **Start: 8/11/2016 10:12:00 AM / Stop: 8/11/2016 4:27:00 PM**
Prep End Date: **8/11/2016 4:49:34 PM**

Prep Batch **76774** Prep Code: **3005ADOD** Technician: **Sydney Powers**

Prep Factor Units: **mL/mL**

Equipment List

Hot Block #6
Thermometer #71
Pipette #P-09-Spikes
Pipette #P-01 Samples

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607317-39A	Equip Blank		50	50	1.000	1 of 1	
1607317-39A PDS	Equip Blank		50	50	1.000	of	
1607317-39A SD	Equip Blank		50	50	1.000	of	
LCS-76774	Aqueous		50	50	1.000	of	
LCSD-76774	Aqueous		50	50	1.000	of	
MB-76774	Aqueous		50	50	1.000	of	

Number	Reagent Name	Amt	Units	Exp. Da
10056	Digestion Vessels	1	ml	02/10/2026
10543	Nitric Acid (Trace Metals)	1	ml	01/10/2017
10544	Hydrochloric Acid (trace metal grade)	1	ml	01/10/2017

Spk ID	Spike Name	SampType	Amt (mL or g)	Exp. Date
MET-150914-10	AL PRIMARY STD 1000 PPM	LCS/MS/MSD	0.25	10/01/2016
MET-150914-9	FE PRIMARY STD 1000 PPM	LCS/MS/MSD	0.25	10/01/2016
MET-SPIKE-160701-3	2500 PPM NATURALS SPIKE	LCS/MS/MSD	0.1	09/29/2016
MET-SPIKE-160715-4B	50 PPM Sb+Ag CAL	LCS/MS/MSD	0.2	10/13/2016
MET-SPIKE-160715-5B	50 PPM Custom+Sn,Ti,B,Mo,Sr CAL	LCS/MS/MSD	0.2	10/13/2016

REVIEWED BY
By Janice Whitt at 10:16:45 AM, 8/18/2016

Calibration Summary Report

Date Acquired 8/11/2016 13:52
Data Batch 160811.b

Level	Calibration File Name
1	012CALB.d
2	013CALS.d
3	014CALS.d
4	015CALS.d
5	016CALS.d
6	017CALS.d
7	018CALS.d
8	019CALS.d

Calibration Table

Ele	Corr Coef	Curve Equation
As	1.0000	y = 0.0011 * x + 1.8281E-004
Be	1.0000	y = 3.3084E-005 * x + 3.4014E-007
B	1.0000	y = 1.5198E-005 * x + 8.6859E-005
Na	1.0000	y = 7.9101E-004 * x + 0.0410
Mg	1.0000	y = 3.9777E-004 * x + 0.0013
Al	1.0000	y = 1.4926E-004 * x + 0.0021
K	1.0000	y = 3.7521E-004 * x + 0.0410
Ca	0.9999	y = 2.1848E-005 * x + 7.3205E-004
Ti	0.9999	y = 1.4894E-004 * x + 1.1173E-006
V	1.0000	y = 0.0047 * x + 0.0023
Cr	1.0000	y = 0.0056 * x + 0.0011
Mn	1.0000	y = 0.0033 * x + 0.0035
Fe	0.9999	y = 0.0049 * x + 0.0076
Co	0.9999	y = 0.0124 * x + 1.8909E-004
Ni	1.0000	y = 0.0034 * x + 0.0039
Cu	1.0000	y = 0.0095 * x + 0.0121
Zn	1.0000	y = 0.0015 * x + 0.0033
Se	1.0000	y = 7.4875E-005 * x + 9.0534E-005
Sr	0.9999	y = 6.2572E-004 * x + 1.1026E-004
Mo	1.0000	y = 5.4917E-004 * x + 8.3448E-006
Ag	1.0000	y = 0.0016 * x + 8.0266E-006
Cd	1.0000	y = 2.4560E-004 * x + 3.5317E-006
Sn	1.0000	y = 5.5037E-004 * x + 4.8260E-004
Sb	1.0000	y = 7.7911E-004 * x + 3.5581E-005
Tl	1.0000	y = 0.0016 * x + 2.6152E-005
Ba	1.0000	y = 2.7016E-004 * x + 1.0956E-005
Pb	1.0000	y = 0.0022 * x + 1.5135E-004
Li	0.9999	y = 2.3096E-005 * x + 6.7819E-006

REVIEWED BY
By Janice Whitt at 3:43:34 PM, 8/11/2016

Calibration Summary Report

Level 7 Cal

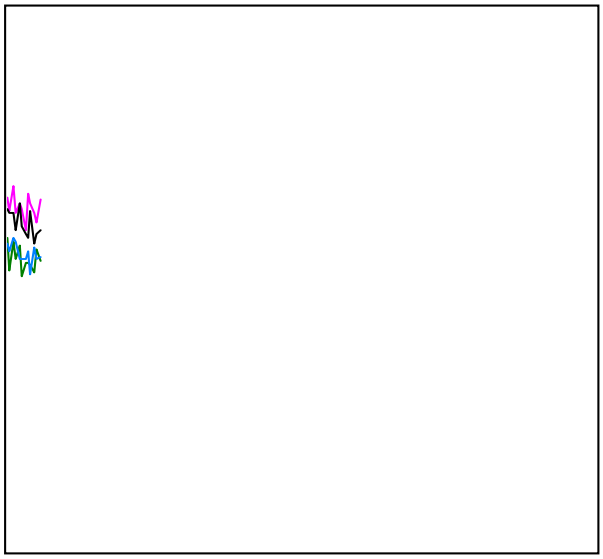
Ele	Conc	Calc	%Rec
As	500	497.46	99
Be	500	498.74	100
B	500	500.84	100
Na	10000	10016.41	100
Mg	10000	10028.31	100
Al	10000	9995.51	100
K	10000	10091.12	101
Ca	10000	9704.82	97
Ti	500	476.47	95
V	500	499.36	100
Cr	500	511.05	102
Mn	500	497.10	99
Fe	10000	10023.80	100
Co	500	516.89	103
Ni	500	502.12	100
Cu	500	503.72	101
Zn	500	499.93	100
Se	500	494.78	99
Sr	500	481.53	96
Mo	500	488.88	98
Ag	500	498.67	100
Cd	500	499.14	100
Sn	500	497.99	100
Sb	500	499.96	100
Tl	500	502.56	101
Ba	500	498.46	100
Pb	500	499.62	100

Level 8 Cal

Ele	Conc	Calc	%Rec
As	2000	1999.87	100
Be	2000	2000.28	100
B	2000	2000.48	100
Na	25000	24981.91	100
Mg	25000	24967.89	100
K	25000	24946.39	100
Ca	25000	25136.28	99
Ti	2000	2007.06	100
V	2000	2000.00	100
Cr	2000	1996.07	100
Mn	2000	2000.16	100
Co	2000	1993.35	100
Ni	2000	1997.94	100
Cu	2000	1997.74	100
Zn	2000	1999.16	100
Se	2000	2000.40	100
Sr	2000	2005.81	100
Mo	2000	2003.73	100
Cd	2000	1999.94	100
Sn	2000	2000.49	100
Tl	2000	1998.16	100
Ba	2000	2000.58	100
Pb	2000	1999.19	100
Li	2000	2006.06	100

REVIEWED BY
By Janice Whitt at 3:43:37 PM, 8/11/2016

Current Signal



Mass	Range	Count	Avg. Count	RSD [%]
51	200	104	100.2	8.44
59	2000	1064	1075.4	4.23
89	2000	1084	1095.0	3.32
140	5000	3239	3166.3	3.52
205	5000	2942	3009.2	3.98
156/140	1	0.278 %	0.293 %	29.32
75	20	4	5.1	63.58
78	20	12	6.3	56.31
56	2000	1045	1008.7	4.58
Integration Time [sec]		0.10		

Plasma Parameters

RF Power	1550	Carrier Gas	0.55
RF Matching	1.90	Option Gas	0.0
Smpl Depth	8.0	Nebulizer Pump	0.10
S/C Temp	2		

Lenses Parameters

Extract 1	0.0	Omega Lens	8.1
Extract 2	-200.0	Cell Entrance	-40
Omega Bias	-100	Cell Exit	-60
Deflect	1.2		

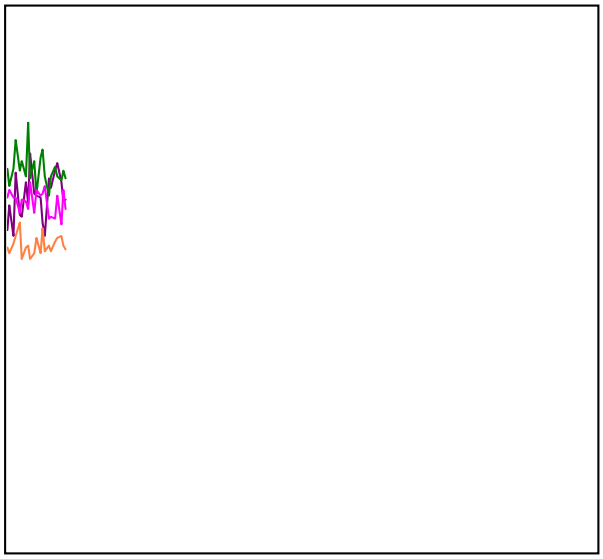
Cell Parameters

Use Gas	true	3rd Gas Flow	0
He Flow	4.5	OctP Bias	-18.0
H2 Flow	0.0	OctP RF	190
Energy Discrimination	3.0		

Meters

IF/BK Press	2.43E+2	Pa	Carrier Gas(BP)	1.05E+2	kPa
Analyzer Press	2.11E-4	Pa	Reflected Power	6	W
Forward Power	1550	W			

Current Signal



Mass	Range	Count	Avg. Count	RSD [%]
7	1000	645	650.5	6.63
59	2000	1368	1403.5	4.48
89	5000	2766	2813.4	3.02
140	5000	3136	3212.9	3.47
205	5000	2368	2340.8	3.10
156/140	2	0.925 %	0.937 %	20.27
95	20	2	3.7	62.39
78	2000	1762	1645.9	2.98
63	200	169	162.4	8.66
75	5000	2742	2836.7	2.35
Integration Time [sec]		0.10		

Plasma Parameters

RF Power	1550	Carrier Gas	0.55
RF Matching	1.90	Option Gas	0.0
Smpl Depth	8.0	Nebulizer Pump	0.10
S/C Temp	2		

Lenses Parameters

Extract 1	0.0	Omega Lens	8.1
Extract 2	-200.0	Cell Entrance	-40
Omega Bias	-100	Cell Exit	-60
Deflect	7.0		

Cell Parameters

Use Gas	false	3rd Gas Flow	0
He Flow	4.2	OctP Bias	-18.0
H2 Flow	0.0	OctP RF	190
Energy Discrimination	3.0		

Meters

IF/BK Press	2.42E+2	Pa	Carrier Gas(BP)	1.05E+2	kPa
Analyzer Press	1.25E-4	Pa	Reflected Power	6	W
Forward Power	1551	W			

US EPA Tune Check Sample Report

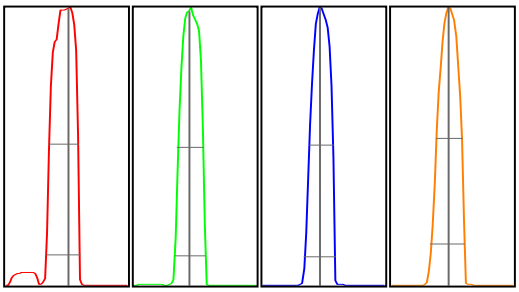
Batch Folder C:\Agilent\ICPMH\1\DATA\DHL TEMPLATE Li.b
Report Comment
Instrument Name ICPMS4 JP12361998

[No gas]

Mass	Count (Mean)	RSD% (Actual)	RSD% (Required)	RSD% (Flag)
7	1149856	0.54	5.00	
59	2211072	0.89	5.00	
115	3907791	1.26	5.00	
205	3687028	0.63	5.00	

Mass	Replicate 1 Count	Replicate 2 Count	Replicate 3 Count	Replicate 4 Count	Replicate 5 Count
7	1153422	1147861	1139820	1155206	1152973
59	2219241	2190562	2189182	2228583	2227790
115	3936867	3891511	3828408	3942105	3940061
205	3718397	3691854	3653723	3679735	3691429

Integration Time [sec] = 0.1



Mass	Peak Height	Axis (Actual)	Axis (Required)	Axis (Flag)	Width-X% (Actual)	Width-X% (Required)	Width-X% (Flag)
7	171704	7.05	6.9 - 7.1		0.815	0.850	
59	386412	58.90	58.9 - 59.1		0.747	0.850	
115	725659	114.95	114.9 - 115.1		0.724	0.850	
205	638803	204.95	204.9 - 205.1		0.801	0.850	

X% = 10 **Int Time [sec] =** 0.1 **Acq Time [sec] =** 135.05 **Y Axis =** Linear

Tune Parameters

Plasma Paramters

ParameterName	Value	Unit	ParameterName	Value	Unit
RF Power	1550	W	Nebulizer Pump	0.10	rps
RF Matching	1.90	V	S/C Temp	2	℃
Smpl Depth	8.0	mm	Gas Switch	Dilution Gas	
Carrier Gas	0.55	L/min	Makeup/Dilution Gas	0.50	L/min
Option Gas	0.0	%			

Lenses Parameters

ParameterName	Value	Unit	ParameterName	Value	Unit
Extract 1	0.0	V	Cell Entrance	-40	V
Extract 2	-200.0	V	Cell Exit	-60	V
Omega Bias	-100	V	Deflect	7.0	V
Omega Lens	8.1	V	Plate Bias	-60	V

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By Janice Whitt at 3:43:46 PM, 8/11/2016

Cell Parameters

ParameterName	Value	Unit	ParameterName	Value	Unit
Use Gas	false		OctP Bias	-18.0	V
He Flow	0.0	mL/min	OctP RF	190	V
H2 Flow	0.0	mL/min	Energy Discrimination	3.0	V
3rd Gas Flow	0	%			

P/A Factor Tuning Report

Current Sample

Sample Name: BLANK STD 1
Data File: 012CALB.d
Acquired: 08/11/2016 13:52:06

Detector Parameters and P/A Factors

Discriminator: 4.5 mV
AnalogHV: 1745 V
PulseHV: 1384 V

Acquired: 08/11/2016 13:21:16

Mass[u]	Element	P/A Factor
6	Li	0.100619
9	Be	0.113142
23	Na	0.120227
24	Mg	0.125043
27	Al	0.128519
39	K	0.130813
45	Sc	0.131680
48		0.132911
51	V	0.133073
52	Cr	0.136832
55	Mn	0.138251
59	Co	0.141755
60	Ni	0.141770
63	Cu	0.145147
66	Zn	0.144887
72		0.143963
74	Ge	0.143920
75	As	0.143867
88	Sr	0.145073
89		0.143183
95		0.144204
97	Mo	0.143957
98	Mo	0.144465
99	[Mo]	0.145871
101		0.146409
105		0.148620
111	Cd	0.149899
114	Cd	0.149755
115	In	0.150549
118	Sn	0.149251
121		0.149907
123	Sb	0.150308
135	Ba	0.149537
138		0.150779
175		0.154181
193		0.155321
205	Tl	0.155621
206	[Pb]	0.156019
207	[Pb]	0.156868
208	Pb	0.157372
209	Bi	0.157439
232		0.157128
238	U	0.156691
44	Ca	Signal too low
78	Se	Signal too low
107	Ag	Signal too low
172		Signal too low

REVIEWED BY
By Janice Whitt at 3:43:48 PM, 8/11/2016

Calibration Blank Report

Date Acquired	8/11/2016 13:52	Sample Name	BLANK STD 1
Data Batch	160811.b	Comment	CAL ICPMS_TW
Data File Name	012CALB.d	Dilution	1

Mass	Name	IS	CPS	%RSD
7	Li	45	7	48.22
9	Be	45	0	173.21
11	B	45	86	5.95
23	Na	45	40403	2.09
24	Mg	45	1233	6.30
27	Al	45	2109	11.60
39	K	45	40372	0.97
44	Ca	45	721	6.36
47	Ti	45	1	173.21
51	V	45	2307	3.36
52	Cr	45	1081	6.86
55	Mn	45	3423	5.26
56	Fe	45	7536	3.09
59	Co	72	131	5.29
60	Ni	72	2670	2.58
63	Cu	72	8422	2.10
66	Zn	72	2288	3.89
75	As	72	127	5.70
78	Se	72	63	9.51
88	Sr	115	800	15.12
95	Mo	115	60	38.49
107	Ag	115	58	23.32
111	Cd	115	26	27.15
118	Sn	115	3496	6.51
121	Sb	115	258	7.90
137	Ba	115	79	21.68
205	Tl	209	448	9.72
208	Pb	209	2590	3.41

QC ISTD Table

Mass	Name	CPS	%RSD
45	Sc	985323	0.73
72	Ge	693391	0.90
115	In	7239973	3.32
209	Bi	17115037	0.97

Calibration Standard Report

Date Acquired	8/11/2016 13:54	Sample Name	L2-160811
Data Batch	160811.b	Comment	CAL ICPMS_TW
Data File Name	013CALS.d	Dilution	1

Mass	Name	IS	CPS	%RSD
7	Li	45	25	43.48
9	Be	45	34	16.04
11	B	45	93	27.90
23	Na	45	58417	0.93
24	Mg	45	9467	2.69
27	Al	45	5109	3.45
39	K	45	48606	1.38
44	Ca	45	1074	2.63
47	Ti	45	150	26.94
51	V	45	6949	2.48
52	Cr	45	6974	2.21
55	Mn	45	6943	0.82
56	Fe	45	105978	0.64
59	Co	72	9433	0.14
60	Ni	72	5240	2.32
63	Cu	72	15215	1.94
66	Zn	72	3474	2.66
75	As	72	931	4.41
78	Se	72	108	7.04
88	Sr	115	5362	2.80
95	Mo	115	3959	1.12
107	Ag	115	12404	1.66
111	Cd	115	1770	7.24
118	Sn	115	7484	3.17
121	Sb	115	5763	1.43
137	Ba	115	1963	5.44
205	Tl	209	29535	1.06
208	Pb	209	41555	1.75

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	Flag
45	Sc	977208	0.93	985323	99.18	70	120	
72	Ge	692474	0.37	693391	99.87	70	120	
115	In	7137209	1.27	7239973	98.58	70	120	
209	Bi	17155225	1.65	17115037	100.23	70	120	

Calibration Standard Report

Date Acquired	8/11/2016 13:56	Sample Name	L-160811
Data Batch	160811.b	Comment	CAL ICPMS_TW
Data File Name	014CALS.d	Dilution	1

Mass	Name	IS	CPS	%RSD
7	Li	45	233	12.42
9	Be	45	346	4.99
11	B	45	202	22.38
23	Na	45	203024	0.69
24	Mg	45	82340	1.18
27	Al	45	32684	0.58
39	K	45	117686	2.07
44	Ca	45	5021	1.33
47	Ti	45	1475	5.18
51	V	45	49514	1.76
52	Cr	45	58862	1.51
55	Mn	45	36893	0.27
56	Fe	45	975397	0.95
59	Co	72	92214	1.18
60	Ni	72	27566	2.10
63	Cu	72	77348	1.54
66	Zn	72	13499	1.72
75	As	72	7914	0.12
78	Se	72	622	2.07
88	Sr	115	44413	0.31
95	Mo	115	37864	1.03
107	Ag	115	118848	0.88
111	Cd	115	17735	2.72
118	Sn	115	42944	2.12
121	Sb	115	56124	1.16
137	Ba	115	19400	0.60
205	Tl	209	285207	1.72
208	Pb	209	389114	1.65

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	Flag
45	Sc	992161	0.85	985323	100.69	70	120	
72	Ge	692387	0.73	693391	99.86	70	120	
115	In	7084158	0.96	7239973	97.85	70	120	
209	Bi	17361879	0.42	17115037	101.44	70	120	

Calibration Standard Report

Date Acquired	8/11/2016 13:58	Sample Name	10X-160811
Data Batch	160811.b	Comment	CAL ICPMS_TW
Data File Name	015CALS.d	Dilution	1

Mass	Name	IS	CPS	%RSD
7	Li	45	1097	5.10
9	Be	45	1617	2.45
11	B	45	872	3.92
23	Na	45	840424	0.63
24	Mg	45	407750	0.25
27	Al	45	151765	0.79
39	K	45	422192	0.17
44	Ca	45	22107	0.53
47	Ti	45	7239	0.75
51	V	45	234455	0.37
52	Cr	45	286682	0.97
55	Mn	45	167648	0.39
56	Fe	45	4915590	0.81
59	Co	72	457589	0.28
60	Ni	72	126244	0.21
63	Cu	72	350493	1.03
66	Zn	72	56819	1.30
75	As	72	39591	0.68
78	Se	72	2738	2.33
88	Sr	115	217260	0.35
95	Mo	115	189797	0.69
107	Ag	115	594154	0.38
111	Cd	115	89654	0.75
118	Sn	115	198199	0.59
121	Sb	115	278379	0.89
137	Ba	115	94997	1.16
205	Tl	209	1442737	0.59
208	Pb	209	1946142	0.21

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	Flag
45	Sc	981259	0.52	985323	99.59	70	120	
72	Ge	686926	0.52	693391	99.07	70	120	
115	In	7098936	1.04	7239973	98.05	70	120	
209	Bi	17371179	0.71	17115037	101.50	70	120	

Calibration Standard Report

Date Acquired	8/11/2016 14:00	Sample Name	5X-160811
Data Batch	160811.b	Comment	CAL ICPMS_TW
Data File Name	016CALS.d	Dilution	1

Mass	Name	IS	CPS	%RSD
7	Li	45	2179	4.85
9	Be	45	3212	3.76
11	B	45	1545	7.39
23	Na	45	1603457	0.83
24	Mg	45	799474	0.26
27	Al	45	298222	0.23
39	K	45	793691	0.45
44	Ca	45	42726	0.83
47	Ti	45	14251	1.44
51	V	45	463630	0.70
52	Cr	45	568619	0.72
55	Mn	45	333863	0.22
56	Fe	45	9721549	1.14
59	Co	72	911594	0.23
60	Ni	72	248034	0.64
63	Cu	72	686160	1.10
66	Zn	72	110791	1.21
75	As	72	78855	0.56
78	Se	72	5351	1.94
88	Sr	115	430009	1.16
95	Mo	115	377434	1.56
107	Ag	115	1182188	0.43
111	Cd	115	175446	0.57
118	Sn	115	399247	0.46
121	Sb	115	559336	0.85
137	Ba	115	190756	0.41
205	Tl	209	2880780	0.70
208	Pb	209	3880567	0.33

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	Flag
45	Sc	970261	0.38	985323	98.47	70	120	
72	Ge	682369	0.17	693391	98.41	70	120	
115	In	7085865	1.46	7239973	97.87	70	120	
209	Bi	17256878	1.26	17115037	100.83	70	120	

Calibration Standard Report

Date Acquired	8/11/2016 14:02	Sample Name	2X-160811
Data Batch	160811.b	Comment	CAL ICPMS_TW
Data File Name	017CALS.d	Dilution	1

Mass	Name	IS	CPS	%RSD
7	Li	45	5402	1.69
9	Be	45	8012	1.35
11	B	45	3677	0.55
23	Na	45	3893510	0.44
24	Mg	45	1951410	0.25
27	Al	45	722057	0.06
39	K	45	1872554	0.23
44	Ca	45	104628	0.59
47	Ti	45	34762	0.62
51	V	45	1134761	0.54
52	Cr	45	1391926	0.59
55	Mn	45	812707	1.56
56	Fe	45	23153027	1.47
59	Co	72	2230236	0.22
60	Ni	72	601400	0.48
63	Cu	72	1657141	0.20
66	Zn	72	264038	0.34
75	As	72	192890	0.59
78	Se	72	12979	0.48
88	Sr	115	1064984	0.50
95	Mo	115	941328	0.53
107	Ag	115	2914403	0.68
111	Cd	115	434339	0.76
118	Sn	115	968709	0.37
121	Sb	115	1366429	0.96
137	Ba	115	472271	0.66
205	Tl	209	7134215	1.90
208	Pb	209	9651897	0.44

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	Flag
45	Sc	967407	0.19	985323	98.18	70	120	
72	Ge	675540	0.43	693391	97.43	70	120	
115	In	7028496	0.72	7239973	97.08	70	120	
209	Bi	17110409	0.15	17115037	99.97	70	120	

Calibration Standard Report

Date Acquired	8/11/2016 14:04	Sample Name	H-160811
Data Batch	160811.b	Comment	CAL ICPMS_TW
Data File Name	018CALS.d	Dilution	1

Mass	Name	IS	CPS	%RSD
7	Li	45	10593	1.40
9	Be	45	15731	1.25
11	B	45	7339	0.62
23	Na	45	7593101	1.30
24	Mg	45	3804193	0.08
27	Al	45	1424387	0.33
39	K	45	3649038	0.82
44	Ca	45	202858	1.30
47	Ti	45	67662	1.12
51	V	45	2227202	0.36
52	Cr	45	2725708	0.68
55	Mn	45	1569458	0.41
56	Fe	45	46455745	0.77
59	Co	72	4348529	0.22
60	Ni	72	1163618	0.21
63	Cu	72	3234064	0.68
66	Zn	72	517458	0.40
75	As	72	377518	0.16
78	Se	72	25144	1.70
88	Sr	115	2088197	1.05
95	Mo	115	1860151	1.03
107	Ag	115	5686596	0.83
111	Cd	115	849338	0.27
118	Sn	115	1902199	0.67
121	Sb	115	2698892	0.29
137	Ba	115	933041	0.56
205	Tl	209	14035025	0.93
208	Pb	209	19002877	1.87

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	Flag
45	Sc	953439	0.85	985323	96.76	70	120	
72	Ge	677078	0.34	693391	97.65	70	120	
115	In	6928235	0.55	7239973	95.69	70	120	
209	Bi	17284220	1.15	17115037	100.99	70	120	

Calibration Standard Report

Date Acquired	8/11/2016 14:06	Sample Name	H2-160811
Data Batch	160811.b	Comment	CAL ICPMS_TW
Data File Name	019CALS.d	Dilution	1

Mass	Name	IS	CPS	%RSD
7	Li	45	43229	0.27
9	Be	45	61739	0.75
11	B	45	28445	0.68
23	Na	45	18474614	1.67
24	Mg	45	9266983	2.12
27	Al	45	12334	1.87
39	K	45	8770680	0.94
44	Ca	45	513041	0.96
47	Ti	45	278884	1.22
51	V	45	8721954	1.32
52	Cr	45	10414881	1.87
55	Mn	45	6169912	1.52
56	Fe	45	46473	25.71
59	Co	72	16386110	2.09
60	Ni	72	4516222	0.79
63	Cu	72	12507243	1.32
66	Zn	72	2015196	0.40
75	As	72	1482473	0.60
78	Se	72	99149	1.30
88	Sr	115	8439033	2.04
95	Mo	115	7397242	0.79
107	Ag	115	2867	38.03
111	Cd	115	3302117	0.58
118	Sn	115	7404484	0.36
121	Sb	115	4335	2.11
137	Ba	115	3633512	0.31
205	Tl	209	54600342	1.02
208	Pb	209	74412898	1.04

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	Flag
45	Sc	932931	0.57	985323	94.68	70	120	
72	Ge	661555	1.00	693391	95.41	70	120	
115	In	6723156	1.26	7239973	92.86	70	120	
209	Bi	16915636	1.98	17115037	98.83	70	120	

Interference Check Solution A (ICS-A) Report

Date Acquired	8/11/2016 14:12	Sample Name	ICSA-160811
Data Batch	160811.b	Comment	ICSAICPMS_TW
Data File Name	022ICSA.d	Dilution	1

Mass	Name	Conc	CPS	%RSD	MDL S	MDL Aq	QC Flag
9	Be	0.158	5	88.6	1.2	0.8	
11	B	16.038	314	10.0	30	30	
51	V	-0.116	1715	7.1	10	10	
52	Cr	0.872	5683	4.3	8	5	
55	Mn	0.435	4674	6.6	8	10	
59	Co	1.386	11529	0.9	8	10	
60	Ni	0.138	2863	7.8	8	10	
63	Cu	2.020	20700	1.3	8	10	
66	Zn	1.420	3617	3.9	10	5	
75	As	0.448	454	7.1	4	5	
78	Se	0.201	70	14.0	2	5	
88	Sr	1.147	5525	3.3	10	10	
107	Ag	0.103	1190	8.5	0.8	2	
111	Cd	0.598	1003	7.3	1.2	1	
118	Sn	0.785	6105	8.2	10	10	
121	Sb	0.127	897	13.0	4	2.5	
137	Ba	0.622	1195	7.9	8	10	
205	Tl	0.107	3191	4.6	4	1.5	
208	Pb	0.359	15135	1.2	1.2	1	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	951564	1.03	985323	96.57	70	120	
72	Ge	662253	0.57	693391	95.51	70	120	
115	In	6675881	0.63	7239973	92.21	70	120	
209	Bi	16084004	1.21	17115037	93.98	70	120	

Interference Check Solution AB (ICS-AB) Report

Date Acquired	8/11/2016 14:14	Sample Name	ICSAB-160811
Data Batch	160811.b	Comment	ICSBICPMS_TW
Data File Name	023ICSB.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
51	V	45	39.980	180890	1.04	40	100.0	80	120	
52	Cr	45	21.309	114984	0.52	20	106.5	80	120	
55	Mn	45	19.816	65932	1.33	20	99.1	80	120	
59	Co	72	41.600	342158	0.97	40	104.0	80	120	
60	Ni	72	38.528	89612	0.59	40	96.3	80	120	
63	Cu	72	21.353	141682	0.90	20	106.8	80	120	
66	Zn	72	21.131	23466	1.12	20	105.7	80	120	
75	As	72	20.328	15194	1.67	20	101.6	80	120	
78	Se	72	19.709	1036	2.11	20	98.5	80	120	
107	Ag	115	19.476	214956	1.54	20	97.4	80	120	
111	Cd	115	10.029	16537	1.54	10	100.3	80	120	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	956179	1.05	985323	97.04	70	120	
72	Ge	661721	0.81	693391	95.43	70	120	
115	In	6703882	0.56	7239973	92.60	70	120	
209	Bi	15962545	0.64	17115037	93.27	70	120	

Initial Calibration Verification (ICV) Report

Date Acquired	8/11/2016 14:20	Sample Name	ICV-160811
Data Batch	160811.b	Comment	ICV ICPMS_TW
Data File Name	026_ICV.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
7	Li	45	97.458	2184	3.36	100	97.5	90	110	
9	Be	45	102.902	3294	1.95	100	102.9	90	110	
11	B	45	106.658	1652	5.15	100	106.7	90	110	
23	Na	45	2627.569	2050548	0.65	2500	105.1	90	110	
24	Mg	45	2622.616	1010517	0.89	2500	104.9	90	110	
27	Al	45	2493.627	362142	0.81	2500	99.7	90	110	
39	K	45	2601.800	984115	0.10	2500	104.1	90	110	
44	Ca	45	2394.756	51331	1.44	2500	95.8	90	110	
47	Ti	45	98.614	14210	1.41	100	98.6	90	110	
51	V	45	102.679	466511	0.61	100	102.7	90	110	
52	Cr	45	107.180	580924	0.66	100	107.2	90	110	
55	Mn	45	100.479	324621	0.87	100	100.5	90	110	
56	Fe	45	2601.934	12243097	1.35	2500	104.1	90	110	
59	Co	72	106.226	908433	0.55	100	106.2	90	110	
60	Ni	72	101.990	242328	0.67	100	102.0	90	110	
63	Cu	72	101.103	666448	0.76	100	101.1	90	110	
66	Zn	72	100.093	107120	0.80	100	100.1	90	110	
75	As	72	99.828	77104	1.04	100	99.8	90	110	
78	Se	72	100.814	5257	0.73	100	100.8	90	110	
88	Sr	115	97.208	435078	0.77	100	97.2	90	110	
95	Mo	115	96.305	377677	0.70	100	96.3	90	110	
107	Ag	115	100.118	1176692	0.67	100	100.1	90	110	
111	Cd	115	99.198	173980	0.78	100	99.2	90	110	
118	Sn	115	99.947	396214	0.71	100	99.9	90	110	
121	Sb	115	99.909	556037	0.52	100	99.9	90	110	
137	Ba	115	98.472	190031	1.17	100	98.5	90	110	
205	Tl	209	103.820	2875222	0.91	100	103.8	90	110	
208	Pb	209	102.845	3881006	0.35	100	102.8	90	110	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	967513	0.75	985323	98.19	70	120	
72	Ge	688193	0.77	693391	99.25	70	120	
115	In	7140231	0.55	7239973	98.62	70	120	
209	Bi	17137771	0.98	17115037	100.13	70	120	

Low Level Calibration Verification (LLCV) Report

Date Acquired	8/11/2016 14:25	Sample Name	LCVL-160811
Data Batch	160811.b	Comment	LCVLICPMS_TW
Data File Name	028LICV.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
7	Li	45	11.300	260	5.03	10	113.0	70	130	
9	Be	45	1.091	35	31.56	1	109.1	70	130	
11	B	45	24.261	442	11.31	20	121.3	70	130	
23	Na	45	117.530	130099	0.78	100	117.5	70	130	
24	Mg	45	109.017	43323	1.27	100	109.0	70	130	
27	Al	45	107.223	17619	1.32	100	107.2	70	130	
39	K	45	113.828	81265	0.79	100	113.8	70	130	
44	Ca	45	109.515	3035	4.19	100	109.5	70	130	
47	Ti	45	5.423	786	3.94	5	108.5	70	130	
51	V	45	1.059	7078	3.61	1	105.9	70	130	
52	Cr	45	5.601	31480	1.95	5	112.0	70	130	
55	Mn	45	5.334	20491	1.24	5	106.7	70	130	
56	Fe	45	115.134	550842	0.11	100	115.1	70	130	
59	Co	72	5.562	47966	2.00	5	111.2	70	130	
60	Ni	72	5.473	15600	1.69	5	109.5	70	130	
63	Cu	72	5.477	44261	0.93	5	109.5	70	130	
66	Zn	72	5.499	8079	3.43	5	110.0	70	130	
75	As	72	5.294	4232	1.49	5	105.9	70	130	
78	Se	72	5.628	354	9.36	5	112.6	70	130	
88	Sr	115	5.280	24283	1.01	5	105.6	70	130	
95	Mo	115	5.356	20981	1.48	5	107.1	70	130	
107	Ag	115	2.157	25311	2.62	2	107.9	70	130	
111	Cd	115	1.062	1880	11.26	1	106.2	70	130	
118	Sn	115	5.538	25112	0.80	5	110.8	70	130	
121	Sb	115	2.113	11961	2.78	2	105.6	70	130	
137	Ba	115	5.394	10443	2.05	5	107.9	70	130	
205	Tl	209	1.090	31275	0.82	1	109.0	70	130	
208	Pb	209	1.103	45113	1.07	1	110.3	70	130	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	971094	0.51	985323	98.56	70	120	
72	Ge	692120	0.57	693391	99.82	70	120	
115	In	7112495	0.68	7239973	98.24	70	120	
209	Bi	17492239	1.67	17115037	102.20	70	120	

Initial Calibration Blank (ICB) Report

Date Acquired	8/11/2016 14:29	Sample Name	ICB-160811
Data Batch	160811.b	Comment	ICB ICPMS_TW
Data File Name	030_ICB.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	MDL S	MDL Aq	QC Flag
7	Li	45	-0.176	3	57.3	2	5	
9	Be	45	0.010	1	86.6	0.4	0.3	
11	B	45	2.769	127	24.1	10	10	
23	Na	45	-5.715	35871	0.9	50	100	
24	Mg	45	-1.423	674	9.3	50	100	
27	Al	45	-2.194	1782	4.6	50	10	
39	K	45	-7.101	37662	1.0	50	100	
44	Ca	45	-7.928	549	4.9	50	100	
47	Ti	45	0.084	13	43.3	4	3	
51	V	45	-0.033	2151	4.8	4	3	
52	Cr	45	-0.009	1030	3.1	2	2	
55	Mn	45	-1.004	153	28.5	2	3	
56	Fe	45	0.790	11296	3.1	50	50	
59	Co	72	-0.007	76	35.7	2	3	
60	Ni	72	-1.024	248	8.2	2	3	
63	Cu	72	-1.082	1346	2.7	2	2	
66	Zn	72	-1.820	372	6.8	4	2	
75	As	72	0.009	135	21.5	2	2	
78	Se	72	-0.197	53	7.4	1	2	
88	Sr	115	-0.012	728	9.7	4	3	
95	Mo	115	0.168	712	6.8	2	2	
107	Ag	115	0.005	117	15.1	0.4	1	
111	Cd	115	-0.002	22	48.2	0.4	0.3	
118	Sn	115	-0.513	1416	4.8	4	3	
121	Sb	115	-0.001	247	6.2	2	0.8	
137	Ba	115	0.082	233	16.5	2	3	
205	Tl	209	0.000	452	4.9	2	0.5	
208	Pb	209	0.019	3387	4.1	0.4	0.3	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	983056	0.54	985323	99.77	70	120	
72	Ge	702505	0.60	693391	101.31	70	120	
115	In	7068515	0.53	7239973	97.63	70	120	
209	Bi	17456049	0.12	17115037	101.99	70	120	

Continuing Calibration Verification (CCV) Report

Date Acquired	8/11/2016 15:57	Sample Name	CCV2-160811
Data Batch	160811.b	Comment	CCV ICPMS_TW
Data File Name	070_CCV.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
7	Li	45	198.434	4587	0.29	200	99.2	90	110	
9	Be	45	205.648	6799	0.48	200	102.8	90	110	
11	B	45	407.646	6278	3.62	200	203.8	90	110	Fail
23	Na	45	5479.146	4372082	0.50	5000	109.6	90	110	
24	Mg	45	5291.181	2104485	0.63	5000	105.8	90	110	
27	Al	45	5033.565	752921	0.28	5000	100.7	90	110	
39	K	45	5347.486	2046012	0.30	5000	106.9	90	110	
44	Ca	45	4969.623	109235	0.56	5000	99.4	90	110	
47	Ti	45	200.435	29834	2.24	200	100.2	90	110	
51	V	45	209.602	981240	0.53	200	104.8	90	110	
52	Cr	45	212.913	1190933	0.64	200	106.5	90	110	
55	Mn	45	206.461	685284	0.91	200	103.2	90	110	
56	Fe	45	5223.530	25378275	1.68	5000	104.5	90	110	
59	Co	72	216.078	1906763	0.25	200	108.0	90	110	
60	Ni	72	210.008	512065	0.40	200	105.0	90	110	
63	Cu	72	211.010	1426107	0.91	200	105.5	90	110	
66	Zn	72	207.015	226139	1.25	200	103.5	90	110	
75	As	72	206.292	164282	0.11	200	103.1	90	110	
78	Se	72	206.034	11019	1.81	200	103.0	90	110	
88	Sr	115	199.112	911186	0.79	200	99.6	90	110	
95	Mo	115	204.048	818820	0.52	200	102.0	90	110	
107	Ag	115	210.403	2530508	0.86	200	105.2	90	110	
111	Cd	115	207.339	372082	0.84	200	103.7	90	110	
118	Sn	115	205.611	830392	0.75	200	102.8	90	110	
121	Sb	115	204.627	1165004	0.36	200	102.3	90	110	
137	Ba	115	204.304	403374	0.59	200	102.2	90	110	
205	Tl	209	209.813	6116832	0.31	200	104.9	90	110	
208	Pb	209	207.181	8228459	0.23	200	103.6	90	110	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	999321	0.20	985323	101.42	70	120	
72	Ge	710232	1.18	693391	102.43	70	120	
115	In	7309115	2.45	7239973	100.96	70	120	
209	Bi	18044722	1.62	17115037	105.43	70	120	

Low Level Calibration Verification (LLCV) Report

Date Acquired	8/11/2016 16:08	Sample Name	LCVL2-160811
Data Batch	160811.b	Comment	LCVLICPMS_TW
Data File Name	072LCCV.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
7	Li	45	10.160	244	7.39	10	101.6	70	130	
9	Be	45	1.077	36	8.41	1	107.7	70	130	
11	B	45	198.119	3130	5.70	20	990.6	70	130	Fail
23	Na	45	186.894	190780	0.67	100	186.9	70	130	Fail
24	Mg	45	109.647	45325	0.48	100	109.6	70	130	
27	Al	45	108.229	18482	1.29	100	108.2	70	130	
39	K	45	121.651	87506	0.26	100	121.7	70	130	
44	Ca	45	108.612	3137	0.28	100	108.6	70	130	
47	Ti	45	5.224	787	12.80	5	104.5	70	130	
51	V	45	1.255	8292	1.36	1	125.5	70	130	
52	Cr	45	5.550	32459	1.30	5	111.0	70	130	
55	Mn	45	5.427	21626	0.82	5	108.5	70	130	
56	Fe	45	113.235	563711	0.94	100	113.2	70	130	
59	Co	72	5.526	49648	1.08	5	110.5	70	130	
60	Ni	72	5.532	16401	0.59	5	110.6	70	130	
63	Cu	72	5.363	45341	0.22	5	107.3	70	130	
66	Zn	72	5.507	8425	1.18	5	110.1	70	130	
75	As	72	5.331	4439	1.24	5	106.6	70	130	
78	Se	72	5.648	370	2.61	5	113.0	70	130	
88	Sr	115	5.387	25117	2.12	5	107.7	70	130	
95	Mo	115	5.201	20673	2.08	5	104.0	70	130	
107	Ag	115	2.131	25361	1.13	2	106.5	70	130	
111	Cd	115	1.048	1883	3.54	1	104.8	70	130	
118	Sn	115	5.476	25232	2.05	5	109.5	70	130	
121	Sb	115	2.144	12308	1.16	2	107.2	70	130	
137	Ba	115	5.304	10418	2.13	5	106.1	70	130	
205	Tl	209	1.089	31584	0.61	1	108.9	70	130	
208	Pb	209	1.085	44891	1.18	1	108.5	70	130	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1010266	0.75	985323	102.53	70	120	
72	Ge	721144	0.40	693391	104.00	70	120	
115	In	7216766	1.43	7239973	99.68	70	120	
209	Bi	17681721	0.65	17115037	103.31	70	120	

Continuing Calibration Blank (CCB) Report

Date Acquired	8/11/2016 16:22	Sample Name	CCB2-160811
Data Batch	160811.b	Comment	CCB ICPMS_TW
Data File Name	073_CCB.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	MDL S	MDL Aq	QC Flag
7	Li	45	0.119	10	21.5	2	5	
9	Be	45	0.010	1	173.2	0.4	0.3	
11	B	45	133.856	2150	3.5	10	10	FailAq FailSoil
23	Na	45	42.102	75334	0.4	50	100	
24	Mg	45	-2.206	380	14.1	50	100	
27	Al	45	-2.707	1760	2.2	50	10	
39	K	45	0.861	41868	1.4	50	100	
44	Ca	45	-8.911	545	10.0	50	100	
47	Ti	45	0.015	3	173.2	4	3	
51	V	45	0.223	3433	5.9	4	3	
52	Cr	45	-0.033	922	17.3	2	2	
55	Mn	45	-1.018	111	17.3	2	3	
56	Fe	45	0.420	9823	2.5	50	50	
59	Co	72	-0.009	60	9.6	2	3	
60	Ni	72	-1.027	249	13.5	2	3	
63	Cu	72	-1.133	1041	6.0	2	2	
66	Zn	72	-1.760	451	10.1	4	2	
75	As	72	0.052	175	8.1	2	2	
78	Se	72	-0.061	62	10.5	1	2	
88	Sr	115	-0.003	776	8.4	4	3	
95	Mo	115	0.031	184	17.7	2	2	
107	Ag	115	0.004	108	14.3	0.4	1	
111	Cd	115	-0.011	7	86.6	0.4	0.3	
118	Sn	115	-0.683	767	1.9	4	3	
121	Sb	115	0.023	386	16.8	2	0.8	
137	Ba	115	0.107	286	13.5	2	3	
205	Tl	209	-0.006	278	1.4	2	0.5	
208	Pb	209	-0.027	1643	8.3	0.4	0.3	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1013771	0.60	985323	102.89	70	120	
72	Ge	726016	1.11	693391	104.71	70	120	
115	In	7187459	2.60	7239973	99.27	70	120	
209	Bi	17694453	1.95	17115037	103.39	70	120	

Sample Report

Date Acquired	8/11/16 4:24 PM	Sample Name	1607317-27A
Data Batch	160811.b	Comment	SAMPICPMS_TSDOD1
Data File Name	074_ARF.d	Dilution	5

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
7	Li	45	65.517	1570	1.83	2000	>RL
9	Be	45	2.712	93	4.69	2000	>RL
11	B	45	205.910	3321	4.27	2000	>RL
23	Na	45	2236.094	1869109	0.40	25000	>RL
24	Mg	45	13617.083	5595299	1.20	25000	>RL
27	Al	45	71559.052	11033099	1.44	10000	OUTCAL
39	K	45	16119.083	6288719	1.86	25000	>RL
44	Ca	45	49095.246	1108562	0.54	25000	OUTCAL
47	Ti	45	253.668	39022	3.37	2000	>RL
51	V	45	101.360	491648	0.28	2000	>RL
52	Cr	45	63.377	367168	0.46	2000	>RL
55	Mn	45	586.360	2004786	0.72	2000	>RL
56	Fe	45	67814.133	340413613	0.74	10000	OUTCAL
59	Co	72	26.034	231118	1.02	2000	>RL
60	Ni	72	41.370	103624	0.53	2000	>RL
63	Cu	72	23.598	168035	0.87	2000	>RL
66	Zn	72	216.903	238120	1.23	2000	>RL
75	As	72	22.839	18403	0.32	2000	>RL
78	Se	72	5.443	356	4.38	2000	>RL
88	Sr	115	323.419	1464871	0.51	2000	>RL
95	Mo	115	1.709	6850	1.28	2000	
107	Ag	115	0.177	2168	6.84	500	
111	Cd	115	0.440	808	1.04	2000	>RL
118	Sn	115	5.025	23499	1.49	2000	>RL
121	Sb	115	4.307	24531	3.85	500	>RL
137	Ba	115	339.947	664515	1.40	2000	>RL
205	Tl	209	0.607	17620	2.47	2000	
208	Pb	209	199.071	7667248	0.11	2000	>RL

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1032780	0.17	985323	104.82	70	120	
72	Ge	714112	1.30	693391	102.99	70	120	
115	In	7234989	0.61	7239973	99.93	70	120	
209	Bi	17497319	1.16	17115037	102.23	70	120	

Dilution Sample (Dil) Report

Date Acquired	8/11/2016 16:26	Sample Name	1607317-27A SD
Data Batch	160811.b	Comment	SD ICPMS_TSDOD1
Data File Name	075_SD.d	Dilution	25

Mass	Name	IS	Conc	CPS	%RSD	Ref Value	%Rec	Low	High	Flag
7	Li	45	15.116	363	7.82	65.5	115.4	110	90	
9	Be	45	0.642	22	31.82	2.7	118.4	110	90	
11	B	45	140.718	2268	6.39	205.9	341.7	110	90	
23	Na	45	504.580	448509	0.45	2236.1	112.8	110	90	
24	Mg	45	2943.112	1194210	0.70	13617.1	108.1	110	90	Good
27	Al	45	15310.263	2330795	0.57	71559.1	107.0	110	90	Good
39	K	45	3415.353	1347601	0.81	16119.1	105.9	110	90	Good
44	Ca	45	10504.409	234615	0.41	49095.2	107.0	110	90	Good
47	Ti	45	54.166	8222	2.82	253.7	106.8	110	90	Good
51	V	45	21.549	105007	0.75	101.4	106.3	110	90	Good
52	Cr	45	13.473	77895	0.41	63.4	106.3	110	90	Good
55	Mn	45	125.457	426016	0.28	586.4	107.0	110	90	Good
56	Fe	45	14400.882	71332744	2.19	67814.1	106.2	110	90	Good
59	Co	72	5.433	48717	1.21	26.0	104.4	110	90	Good
60	Ni	72	7.906	22204	2.45	41.4	95.6	110	90	Good
63	Cu	72	4.185	37228	0.71	23.6	88.7	110	90	
66	Zn	72	46.814	53655	1.81	216.9	107.9	110	90	Good
75	As	72	4.722	3939	3.06	22.8	103.4	110	90	Good
78	Se	72	0.987	118	5.64	5.4	90.6	110	90	Good
88	Sr	115	65.302	306623	0.87	323.4	101.0	110	90	Good
95	Mo	115	0.336	1446	4.15	1.7	98.4	110	90	Good
107	Ag	115	0.039	547	7.39	0.2	111.5	110	90	
111	Cd	115	0.100	211	10.27	0.4	114.0	110	90	
118	Sn	115	0.482	5597	2.25	5.0	48.0	110	90	
121	Sb	115	0.875	5371	3.17	4.3	101.6	110	90	Good
137	Ba	115	69.420	140444	1.30	339.9	102.1	110	90	Good
205	Tl	209	0.124	4032	0.72	0.6	102.0	110	90	Good
208	Pb	209	41.281	1621324	0.63	199.1	103.7	110	90	Good

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1019024	0.18	985323	103.42	70	120	
72	Ge	719658	0.47	693391	103.79	70	120	
115	In	7485166	1.26	7239973	103.39	70	120	
209	Bi	17821254	1.79	17115037	104.13	70	120	

Post Digestion Spike Sample (PDS) Report

Date Acquired	8/11/2016 16:28	Sample Name	1607317-27A PDS
Data Batch	160811.b	Comment	PDS ICPMS_TSDOD1
Data File Name	076_PDS.d	Dilution	5

Mass	Name	IS	Conc	CPS	%RSD	Ref Conc	Spk Amt	%Rec	Low	High	Flag
7	Li	45	248.952	5970	3.67	65.5	200	91.7	75	125	
9	Be	45	191.468	6570	1.59	2.7	200	94.4	75	125	
11	B	45	389.890	6236	1.60	205.9	200	92.0	75	125	
23	Na	45	7162.433	5918510	1.52	2236.1	5000	98.5	75	125	
24	Mg	45	18993.234	7836356	1.62	13617.1	5000	107.5	75	125	
27	Al	45	78514.398	12156006	1.24	71559.1	5000	139.1	75	125	Fail
39	K	45	21204.448	8293640	1.69	16119.1	5000	101.7	75	125	
44	Ca	45	54722.382	1240749	0.63	49095.2	5000	112.5	75	125	
47	Ti	45	448.289	69247	1.11	253.7	200	97.3	75	125	
51	V	45	303.139	1471739	0.69	101.4	200	100.9	75	125	
52	Cr	45	268.641	1559193	0.59	63.4	200	102.6	75	125	
55	Mn	45	791.095	2714919	0.29	586.4	200	102.4	75	125	
56	Fe	45	74013.025	373090021	0.59	67814.1	5000	124.0	75	125	
59	Co	72	229.189	2065205	0.27	26.0	200	101.6	75	125	
60	Ni	72	235.532	586082	0.57	41.4	200	97.1	75	125	
63	Cu	72	216.399	1493117	0.69	23.6	200	96.4	75	125	
66	Zn	72	414.156	459549	0.82	216.9	200	98.6	75	125	
75	As	72	218.282	177496	0.26	22.8	200	97.7	75	125	
78	Se	72	197.372	10782	1.08	5.4	200	96.0	75	125	
88	Sr	115	528.679	2413497	0.74	323.4	200	102.6	75	125	
95	Mo	115	192.989	772955	0.66	1.7	200	95.6	75	125	
107	Ag	115	194.985	2340672	0.47	0.2	200	97.4	75	125	
111	Cd	115	193.233	346175	0.15	0.4	200	96.4	75	125	
118	Sn	115	207.398	835960	0.49	5.0	200	101.2	75	125	
121	Sb	115	200.034	1136784	0.67	4.3	200	97.9	75	125	
137	Ba	115	541.586	1067196	0.83	339.9	200	100.8	75	125	
205	Tl	209	200.187	5702353	0.63	0.6	200	99.8	75	125	
208	Pb	209	402.544	15617543	0.65	199.1	200	101.7	75	125	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1037134	0.41	985323	105.26	70	120	
72	Ge	725183	0.20	693391	104.59	70	120	
115	In	7298754	3.23	7239973	100.81	70	120	
209	Bi	17628559	1.19	17115037	103.00	70	120	

Matrix Spike Sample (MS) Report

Date Acquired	8/11/2016 16:30	Sample Name	1607317-27A MS
Data Batch	160811.b	Comment	MS ICPMS_TSDOD1
Data File Name	077_MSS.d	Dilution	5

Mass	Name	IS	Conc	CPS	%RSD	Ref Conc	Spk Amt	%Rec	Low	High	Flag
7	Li	45	256.941	6128	0.75	65.5	200	95.7	80	120	
9	Be	45	197.700	6748	1.35	2.7	200	97.5	80	120	
11	B	45	399.688	6355	4.35	205.9	200	96.9	80	120	
23	Na	45	7284.938	5986642	0.64	2236.1	1000	504.9	80	120	Fail
24	Mg	45	19870.801	8154249	0.92	13617.1	1000	625.4	80	120	Fail
27	Al	45	83490.779	12857216	0.62	71559.1	1000	1193.2	80	120	Fail
39	K	45	23373.946	9089594	1.31	16119.1	1000	725.5	80	120	Fail
44	Ca	45	54617.464	1231770	1.29	49095.2	1000	552.2	80	120	Fail
47	Ti	45	538.730	82766	1.31	253.7	200	142.5	80	120	Fail
51	V	45	319.393	1542194	0.33	101.4	200	109.0	80	120	
52	Cr	45	275.377	1589656	0.32	63.4	200	106.0	80	120	
55	Mn	45	803.397	2742330	0.55	586.4	200	108.5	80	120	
56	Fe	45	75169.538	376905852	1.62	67814.1	1000	735.5	80	120	Fail
59	Co	72	238.268	2120412	0.25	26.0	200	106.1	80	120	
60	Ni	72	248.766	611192	0.36	41.4	200	103.7	80	120	
63	Cu	72	226.453	1542706	0.46	23.6	200	101.4	80	120	
66	Zn	72	438.775	480695	0.17	216.9	200	110.9	80	120	
75	As	72	228.621	183596	0.35	22.8	200	102.9	80	120	
78	Se	72	204.778	11046	0.64	5.4	200	99.7	80	120	
88	Sr	115	656.625	2963153	1.46	323.4	200	166.6	80	120	Fail
95	Mo	115	188.678	747143	1.07	1.7	200	93.5	80	120	
107	Ag	115	201.448	2390656	0.76	0.2	200	100.6	80	120	
111	Cd	115	204.116	361473	1.35	0.4	200	101.8	80	120	
118	Sn	115	215.524	858652	0.07	5.0	200	105.2	80	120	
121	Sb	115	72.129	405422	0.90	4.3	200	33.9	80	120	Fail
137	Ba	115	569.388	1109132	0.56	339.9	200	114.7	80	120	
205	Tl	209	213.493	6010675	1.22	0.6	200	106.4	80	120	
208	Pb	209	712.553	27322213	0.85	199.1	200	256.7	80	120	Fail

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1031581	0.69	985323	104.69	70	120	
72	Ge	716205	0.45	693391	103.29	70	120	
115	In	7210069	1.08	7239973	99.59	70	120	
209	Bi	17422955	0.78	17115037	101.80	70	120	

Matrix Spike Sample (MS) Report

Date Acquired	8/11/2016 16:32	Sample Name	1607317-27A MSD
Data Batch	160811.b	Comment	MSD ICPMS_TSDOD1
Data File Name	078_MSS.d	Dilution	5

Mass	Name	IS	Conc	CPS	%RSD	Ref Conc	Spk Amt	%Rec	Low	High	Flag
7	Li	45	252.343	5964	2.76	65.5	200	93.4	80	120	
9	Be	45	203.576	6885	1.82	2.7	200	100.4	80	120	
11	B	45	383.194	6041	4.38	205.9	200	88.6	80	120	
23	Na	45	7127.767	5806095	2.33	2236.1	1000	489.2	80	120	Fail
24	Mg	45	18781.861	7639129	1.25	13617.1	1000	516.5	80	120	Fail
27	Al	45	77166.749	11777303	0.74	71559.1	1000	560.8	80	120	Fail
39	K	45	21528.793	8300372	2.08	16119.1	1000	541.0	80	120	Fail
44	Ca	45	48199.280	1077299	0.64	49095.2	1000	-89.6	80	120	Fail
47	Ti	45	510.121	77672	0.14	253.7	200	128.2	80	120	Fail
51	V	45	307.205	1470071	0.92	101.4	200	102.9	80	120	
52	Cr	45	271.714	1554478	0.45	63.4	200	104.2	80	120	
55	Mn	45	763.028	2581239	0.68	586.4	200	88.3	80	120	
56	Fe	45	67525.040	335524920	0.27	67814.1	1000	-28.9	80	120	Fail
59	Co	72	234.191	2096320	1.16	26.0	200	104.1	80	120	
60	Ni	72	242.560	599505	1.35	41.4	200	100.6	80	120	
63	Cu	72	225.568	1545610	0.58	23.6	200	101.0	80	120	
66	Zn	72	413.667	455960	0.74	216.9	200	98.4	80	120	
75	As	72	223.270	180339	0.75	22.8	200	100.2	80	120	
78	Se	72	201.215	10918	1.04	5.4	200	97.9	80	120	
88	Sr	115	543.174	2424684	0.61	323.4	200	109.9	80	120	
95	Mo	115	190.902	747742	0.13	1.7	200	94.6	80	120	
107	Ag	115	202.455	2376604	0.25	0.2	200	101.1	80	120	
111	Cd	115	204.252	357782	0.56	0.4	200	101.9	80	120	
118	Sn	115	216.195	852025	1.06	5.0	200	105.6	80	120	
121	Sb	115	72.260	401764	0.80	4.3	200	34.0	80	120	Fail
137	Ba	115	562.237	1083360	0.64	339.9	200	111.1	80	120	
205	Tl	209	213.314	5960264	0.32	0.6	200	106.4	80	120	
208	Pb	209	644.770	24536182	0.75	199.1	200	222.8	80	120	Fail

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1022364	0.86	985323	103.76	70	120	
72	Ge	720373	0.77	693391	103.89	70	120	
115	In	7131813	0.22	7239973	98.51	70	120	
209	Bi	17291284	0.57	17115037	101.03	70	120	

Continuing Calibration Verification (CCV) Report

Date Acquired	8/11/2016 16:34	Sample Name	CCV3-160811
Data Batch	160811.b	Comment	CCV ICPMS_TW
Data File Name	079_CCV.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
7	Li	45	200.484	4585	0.92	200	100.2	90	110	
9	Be	45	209.278	6847	2.16	200	104.6	90	110	
11	B	45	315.076	4820	4.99	200	157.5	90	110	Fail
23	Na	45	5313.754	4197367	1.34	5000	106.3	90	110	
24	Mg	45	5302.952	2087242	1.09	5000	106.1	90	110	
27	Al	45	5101.468	755098	0.55	5000	102.0	90	110	
39	K	45	5416.274	2050167	0.25	5000	108.3	90	110	
44	Ca	45	4984.391	108410	0.40	5000	99.7	90	110	
47	Ti	45	199.704	29414	0.38	200	99.9	90	110	
51	V	45	210.971	977300	0.25	200	105.5	90	110	
52	Cr	45	215.587	1193240	0.68	200	107.8	90	110	
55	Mn	45	209.120	686819	0.40	200	104.6	90	110	
56	Fe	45	5250.925	25245371	2.23	5000	105.0	90	110	
59	Co	72	215.505	1900668	0.30	200	107.8	90	110	
60	Ni	72	209.120	509627	0.22	200	104.6	90	110	
63	Cu	72	210.194	1419833	0.63	200	105.1	90	110	
66	Zn	72	206.207	225128	0.75	200	103.1	90	110	
75	As	72	207.622	165250	0.20	200	103.8	90	110	
78	Se	72	204.754	10946	1.54	200	102.4	90	110	
88	Sr	115	200.410	906480	1.51	200	100.2	90	110	
95	Mo	115	204.021	809141	0.38	200	102.0	90	110	
107	Ag	115	210.993	2507627	0.48	200	105.5	90	110	
111	Cd	115	209.457	371551	1.43	200	104.7	90	110	
118	Sn	115	206.299	823350	0.50	200	103.1	90	110	
121	Sb	115	205.359	1155619	0.95	200	102.7	90	110	
137	Ba	115	206.350	402654	1.07	200	103.2	90	110	
205	Tl	209	212.581	6081683	0.70	200	106.3	90	110	
208	Pb	209	208.180	8113568	0.25	200	104.1	90	110	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	988930	0.91	985323	100.37	70	120	
72	Ge	709834	0.94	693391	102.37	70	120	
115	In	7222799	1.98	7239973	99.76	70	120	
209	Bi	17704592	0.63	17115037	103.44	70	120	

Low Level Calibration Verification (LLCV) Report

Date Acquired	8/11/2016 16:44	Sample Name	LCVL3-160811
Data Batch	160811.b	Comment	LCVLICPMS_TW
Data File Name	081LCCV.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
7	Li	45	10.029	244	9.95	10	100.3	70	130	
9	Be	45	0.886	30	15.58	1	88.6	70	130	
11	B	45	122.139	1989	3.69	20	610.7	70	130	Fail
23	Na	45	151.172	164334	0.62	100	151.2	70	130	Fail
24	Mg	45	107.686	45122	1.88	100	107.7	70	130	
27	Al	45	109.046	18843	2.90	100	109.0	70	130	
39	K	45	123.274	89271	0.37	100	123.3	70	130	
44	Ca	45	105.494	3108	2.87	100	105.5	70	130	
47	Ti	45	5.226	798	3.19	5	104.5	70	130	
51	V	45	1.169	7987	2.68	1	116.9	70	130	
52	Cr	45	5.589	33112	1.85	5	111.8	70	130	
55	Mn	45	5.272	21385	1.19	5	105.4	70	130	
56	Fe	45	114.034	575066	0.80	100	114.0	70	130	
59	Co	72	5.507	49992	1.97	5	110.1	70	130	
60	Ni	72	5.567	16659	1.18	5	111.3	70	130	
63	Cu	72	5.434	46301	0.33	5	108.7	70	130	
66	Zn	72	5.657	8679	2.90	5	113.1	70	130	
75	As	72	5.408	4549	2.35	5	108.2	70	130	
78	Se	72	5.600	372	4.75	5	112.0	70	130	
88	Sr	115	5.258	25152	1.09	5	105.2	70	130	
95	Mo	115	5.226	21287	1.54	5	104.5	70	130	
107	Ag	115	2.153	26275	2.47	2	107.7	70	130	
111	Cd	115	1.003	1848	6.78	1	100.3	70	130	
118	Sn	115	5.222	24830	2.54	5	104.4	70	130	
121	Sb	115	2.110	12423	1.09	2	105.5	70	130	
137	Ba	115	5.255	10582	3.38	5	105.1	70	130	
205	Tl	209	1.063	30946	1.80	1	106.3	70	130	
208	Pb	209	1.108	45908	1.39	1	110.8	70	130	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1023460	1.12	985323	103.87	70	120	
72	Ge	728650	0.57	693391	105.08	70	120	
115	In	7397508	1.16	7239973	102.18	70	120	
209	Bi	17742398	2.24	17115037	103.67	70	120	

Continuing Calibration Blank (CCB) Report

Date Acquired	8/11/2016 16:46	Sample Name	CCB3-160811
Data Batch	160811.b	Comment	CCB ICPMS_TW
Data File Name	082_CCB.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	MDL S	MDL Aq	QC Flag
7	Li	45	-0.054	6	27.0	2	5	
9	Be	45	0.059	2	49.5	0.4	0.3	
11	B	45	98.898	1627	4.9	10	10	FailAq FailSoil
23	Na	45	25.299	62443	0.5	50	100	
24	Mg	45	-1.901	508	18.7	50	100	
27	Al	45	-2.255	1846	4.9	50	10	
39	K	45	0.205	42009	0.9	50	100	
44	Ca	45	-11.604	490	10.2	50	100	
47	Ti	45	0.138	22	67.6	4	3	
51	V	45	0.124	2990	2.7	4	3	
52	Cr	45	-0.037	910	3.1	2	2	
55	Mn	45	-1.001	169	18.7	2	3	
56	Fe	45	1.060	13098	2.9	50	50	
59	Co	72	-0.006	87	33.3	2	3	
60	Ni	72	-1.016	281	9.9	2	3	
63	Cu	72	-1.140	1007	10.1	2	2	
66	Zn	72	-1.570	671	53.9	4	2	
75	As	72	0.063	187	3.1	2	2	
78	Se	72	0.126	74	10.7	1	2	
88	Sr	115	0.011	851	4.7	4	3	
95	Mo	115	0.050	257	41.9	2	2	
107	Ag	115	0.006	133	15.6	0.4	1	
111	Cd	115	-0.003	20	0.0	0.4	0.3	
118	Sn	115	-0.635	968	4.0	4	3	
121	Sb	115	0.025	400	13.9	2	0.8	
137	Ba	115	0.090	257	7.9	2	3	
205	Tl	209	0.004	593	12.6	2	0.5	
208	Pb	209	0.007	2977	3.7	0.4	0.3	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1023294	0.52	985323	103.85	70	120	
72	Ge	735646	0.26	693391	106.09	70	120	
115	In	7257227	2.33	7239973	100.24	70	120	
209	Bi	17820634	1.96	17115037	104.12	70	120	

Continuing Calibration Verification (CCV) Report

Date Acquired	8/11/2016 16:52	Sample Name	CCV4-160811
Data Batch	160811.b	Comment	CCV ICPMS_TW
Data File Name	085_CCV.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
7	Li	45	194.011	4578	2.64	200	97.0	90	110	
9	Be	45	196.845	6644	0.99	200	98.4	90	110	
11	B	45	285.236	4511	6.28	200	142.6	90	110	Fail
23	Na	45	5508.358	4486412	2.39	5000	110.2	90	110	Fail
24	Mg	45	5214.346	2117097	0.10	5000	104.3	90	110	
27	Al	45	5064.198	773253	0.34	5000	101.3	90	110	
39	K	45	5424.443	2117959	1.79	5000	108.5	90	110	
44	Ca	45	5007.636	112354	0.88	5000	100.2	90	110	
47	Ti	45	200.712	30496	0.18	200	100.4	90	110	
51	V	45	208.413	995981	0.62	200	104.2	90	110	
52	Cr	45	211.609	1208298	0.70	200	105.8	90	110	
55	Mn	45	206.908	701058	0.40	200	103.5	90	110	
56	Fe	45	5105.348	25320619	0.91	5000	102.1	90	110	
59	Co	72	215.799	1941336	0.65	200	107.9	90	110	
60	Ni	72	208.063	517197	0.55	200	104.0	90	110	
63	Cu	72	208.272	1435002	0.91	200	104.1	90	110	
66	Zn	72	207.829	231418	0.94	200	103.9	90	110	
75	As	72	209.602	170162	0.40	200	104.8	90	110	
78	Se	72	209.565	11426	1.28	200	104.8	90	110	
88	Sr	115	200.570	933355	0.68	200	100.3	90	110	
95	Mo	115	200.706	818989	0.38	200	100.4	90	110	
107	Ag	115	205.894	2518179	0.83	200	102.9	90	110	
111	Cd	115	206.196	376321	0.74	200	103.1	90	110	
118	Sn	115	205.078	842183	0.29	200	102.5	90	110	
121	Sb	115	205.212	1188216	0.42	200	102.6	90	110	
137	Ba	115	204.213	410026	0.47	200	102.1	90	110	
205	Tl	209	213.173	6079831	0.81	200	106.6	90	110	
208	Pb	209	209.856	8153702	0.68	200	104.9	90	110	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1020127	0.36	985323	103.53	70	120	
72	Ge	723982	0.13	693391	104.41	70	120	
115	In	7431381	1.63	7239973	102.64	70	120	
209	Bi	17657287	2.87	17115037	103.17	70	120	

Low Level Calibration Verification (LLCV) Report

Date Acquired	8/11/2016 16:58	Sample Name	LCVL4-160811
Data Batch	160811.b	Comment	LCVLICPMS_TW
Data File Name	087LCCV.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
7	Li	45	9.871	241	10.59	10	98.7	70	130	
9	Be	45	0.825	28	34.82	1	82.5	70	130	
11	B	45	106.748	1755	7.17	20	533.7	70	130	Fail
23	Na	45	173.437	182930	1.10	100	173.4	70	130	Fail
24	Mg	45	107.937	45361	2.15	100	107.9	70	130	
27	Al	45	110.719	19161	2.41	100	110.7	70	130	
39	K	45	129.605	91982	0.64	100	129.6	70	130	
44	Ca	45	107.987	3173	6.76	100	108.0	70	130	
47	Ti	45	5.305	812	15.60	5	106.1	70	130	
51	V	45	1.309	8686	1.41	1	130.9	70	130	Fail
52	Cr	45	5.569	33098	0.19	5	111.4	70	130	
55	Mn	45	5.512	22266	0.73	5	110.2	70	130	
56	Fe	45	114.221	577719	0.95	100	114.2	70	130	
59	Co	72	5.540	50825	1.59	5	110.8	70	130	
60	Ni	72	5.358	16310	1.75	5	107.2	70	130	
63	Cu	72	5.236	45418	2.27	5	104.7	70	130	
66	Zn	72	5.683	8800	3.05	5	113.7	70	130	
75	As	72	5.332	4534	1.42	5	106.6	70	130	
78	Se	72	5.079	347	4.51	5	101.6	70	130	
88	Sr	115	5.374	25493	1.40	5	107.5	70	130	
95	Mo	115	5.102	20632	1.10	5	102.0	70	130	
107	Ag	115	2.136	25863	0.65	2	106.8	70	130	
111	Cd	115	1.020	1866	6.30	1	102.0	70	130	
118	Sn	115	5.381	25285	3.11	5	107.6	70	130	
121	Sb	115	2.135	12470	1.42	2	106.7	70	130	
137	Ba	115	5.336	10664	0.51	5	106.7	70	130	
205	Tl	209	1.089	31713	0.98	1	108.9	70	130	
208	Pb	209	1.094	45441	0.91	1	109.4	70	130	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1026541	0.62	985323	104.18	70	120	
72	Ge	736399	0.15	693391	106.20	70	120	
115	In	7341122	0.43	7239973	101.40	70	120	
209	Bi	17755224	1.89	17115037	103.74	70	120	

Continuing Calibration Blank (CCB) Report

Date Acquired	8/11/2016 17:00	Sample Name	CCB4-160811
Data Batch	160811.b	Comment	CCB ICPMS_TW
Data File Name	088_CCB.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	MDL S	MDL Aq	QC Flag
7	Li	45	0.172	11	41.7	2	5	
9	Be	45	0.029	1	43.3	0.4	0.3	
11	B	45	86.559	1438	10.7	10	10	FailAq FailSoil
23	Na	45	43.369	77243	1.1	50	100	
24	Mg	45	-1.993	471	6.7	50	100	
27	Al	45	-2.152	1866	6.1	50	10	
39	K	45	6.905	44680	0.2	50	100	
44	Ca	45	-9.156	545	4.9	50	100	
47	Ti	45	0.022	4	43.4	4	3	
51	V	45	0.199	3357	1.1	4	3	
52	Cr	45	-0.004	1103	4.7	2	2	
55	Mn	45	-0.999	179	22.4	2	3	
56	Fe	45	0.856	12114	3.1	50	50	
59	Co	72	-0.005	97	36.5	2	3	
60	Ni	72	-1.028	249	17.5	2	3	
63	Cu	72	-1.147	950	2.0	2	2	
66	Zn	72	-1.774	440	13.3	4	2	
75	As	72	0.068	190	4.0	2	2	
78	Se	72	0.147	75	10.8	1	2	
88	Sr	115	-0.002	810	2.3	4	3	
95	Mo	115	0.063	317	3.6	2	2	
107	Ag	115	0.009	171	25.4	0.4	1	
111	Cd	115	-0.003	20	60.1	0.4	0.3	
118	Sn	115	-0.633	998	3.7	4	3	
121	Sb	115	0.025	411	20.1	2	0.8	
137	Ba	115	0.082	247	5.9	2	3	
205	Tl	209	0.001	504	8.5	2	0.5	
208	Pb	209	-0.007	2435	0.6	0.4	0.3	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1025578	0.74	985323	104.09	70	120	
72	Ge	733437	0.47	693391	105.78	70	120	
115	In	7420782	0.49	7239973	102.50	70	120	
209	Bi	17883652	0.59	17115037	104.49	70	120	

Method Blank Report

Date Acquired	8/11/16 5:02 PM	Sample Name	MB-76748
Data Batch	160811.b	Comment	MBLKICPMS_TSDOD1
Data File Name	089_PB.d	Dilution	5

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
7	Li	45	-0.018	7	17.32		
9	Be	45	0.009	1	173.21		
11	B	45	80.686	1373	10.92		FAIL
23	Na	45	50.591	84740	2.19		FAIL
24	Mg	45	3.121	2608	1.41		
27	Al	45	-1.557	1996	1.85		
39	K	45	15.065	48766	1.39		
44	Ca	45	10.737	1011	4.46		
47	Ti	45	0.593	93	117.60		
51	V	45	0.211	3480	3.57		
52	Cr	45	0.122	1862	7.25		
55	Mn	45	0.327	4765	1.67		
56	Fe	45	10.672	62245	1.20		
59	Co	72	0.001	148	30.46		
60	Ni	72	-0.922	524	15.88		
63	Cu	72	-1.074	1491	4.88		
66	Zn	72	-0.389	2026	0.25		
75	As	72	0.042	172	8.10		
78	Se	72	-0.212	56	14.99		
88	Sr	115	0.029	978	4.70		
95	Mo	115	0.060	314	6.21		
107	Ag	115	0.009	171	13.82		
111	Cd	115	0.002	31	26.97		
118	Sn	115	4.088	20822	0.59		J
121	Sb	115	-0.001	264	18.28		
137	Ba	115	0.041	169	9.33		
205	Tl	209	0.007	679	7.95		
208	Pb	209	0.054	4934	1.30		

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1045871	0.34	985323	106.14	70	120	
72	Ge	747931	0.60	693391	107.87	70	120	
115	In	7620689	1.15	7239973	105.26	70	120	
209	Bi	18305545	0.13	17115037	106.96	70	120	

Laboratory Control Sample (LCS) Report

Date Acquired	8/11/2016 17:04	Sample Name	LCS-76748
Data Batch	160811.b	Comment	LCS ICPMS_TSDOD1
Data File Name	090_LS.d	Dilution	5

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
7	Li	45	192.880	4651	0.96	200	96.4	80	120	
9	Be	45	199.735	6889	0.97	200	99.9	80	120	
11	B	45	257.063	4164	4.41	200	128.5	80	120	
23	Na	45	5136.368	4278203	0.65	1000	513.6	80	120	Fail
24	Mg	45	5106.332	2118707	0.71	1000	510.6	80	120	Fail
27	Al	45	987.081	155815	0.36	1000	98.7	80	120	
39	K	45	5229.136	2088074	0.81	1000	522.9	80	120	Fail
44	Ca	45	4802.106	110135	0.74	1000	480.2	80	120	Fail
47	Ti	45	199.024	30904	2.73	200	99.5	80	120	
51	V	45	206.439	1008187	0.81	200	103.2	80	120	
52	Cr	45	208.995	1219530	1.12	200	104.5	80	120	
55	Mn	45	203.934	706166	0.49	200	102.0	80	120	
56	Fe	45	1017.089	5161314	0.42	1000	101.7	80	120	
59	Co	72	210.746	1931306	0.95	200	105.4	80	120	
60	Ni	72	207.715	525983	0.98	200	103.9	80	120	
63	Cu	72	206.224	1447495	0.25	200	103.1	80	120	
66	Zn	72	202.178	229398	0.75	200	101.1	80	120	
75	As	72	203.288	168124	1.01	200	101.6	80	120	
78	Se	72	197.460	10970	2.99	200	98.7	80	120	
88	Sr	115	201.776	937059	1.03	200	100.9	80	120	
95	Mo	115	202.630	825282	0.48	200	101.3	80	120	
107	Ag	115	205.667	2510377	1.01	200	102.8	80	120	
111	Cd	115	205.439	374215	0.56	200	102.7	80	120	
118	Sn	115	212.174	869527	0.43	200	106.1	80	120	
121	Sb	115	200.895	1160871	1.50	200	100.4	80	120	
137	Ba	115	203.015	406803	1.63	200	101.5	80	120	
205	Tl	209	209.648	6115456	1.66	200	104.8	80	120	
208	Pb	209	205.238	8156181	0.15	200	102.6	80	120	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1042473	0.64	985323	105.80	70	120	
72	Ge	737510	0.48	693391	106.36	70	120	
115	In	7416619	1.24	7239973	102.44	70	120	
209	Bi	18052898	0.64	17115037	105.48	70	120	

Laboratory Control Sample (LCS) Report

Date Acquired	8/11/2016 17:06	Sample Name	LCSD-76748
Data Batch	160811.b	Comment	LCSDICPMS_TSDOD1
Data File Name	091_LS.d	Dilution	5

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
7	Li	45	194.819	4657	3.09	200	97.4	80	120	
9	Be	45	193.572	6619	1.29	200	96.8	80	120	
11	B	45	262.551	4213	5.32	200	131.3	80	120	
23	Na	45	5084.894	4199237	0.54	1000	508.5	80	120	Fail
24	Mg	45	5034.123	2070721	0.46	1000	503.4	80	120	Fail
27	Al	45	970.640	151937	0.70	1000	97.1	80	120	
39	K	45	5124.506	2029476	0.29	1000	512.5	80	120	Fail
44	Ca	45	4810.383	109375	0.16	1000	481.0	80	120	Fail
47	Ti	45	197.529	30407	1.53	200	98.8	80	120	
51	V	45	204.296	989168	0.63	200	102.1	80	120	
52	Cr	45	207.299	1199215	0.20	200	103.6	80	120	
55	Mn	45	201.756	692663	0.98	200	100.9	80	120	
56	Fe	45	1004.982	5055996	0.48	1000	100.5	80	120	
59	Co	72	210.697	1910574	0.55	200	105.3	80	120	
60	Ni	72	205.850	515851	0.73	200	102.9	80	120	
63	Cu	72	203.462	1413394	1.16	200	101.7	80	120	
66	Zn	72	200.969	225655	0.32	200	100.5	80	120	
75	As	72	201.857	165188	0.50	200	100.9	80	120	
78	Se	72	198.887	10935	1.20	200	99.4	80	120	
88	Sr	115	199.224	914628	0.24	200	99.6	80	120	
95	Mo	115	202.366	814728	0.26	200	101.2	80	120	
107	Ag	115	205.050	2474084	0.31	200	102.5	80	120	
111	Cd	115	201.609	362963	1.00	200	100.8	80	120	
118	Sn	115	210.205	851592	0.10	200	105.1	80	120	
121	Sb	115	197.183	1126497	0.89	200	98.6	80	120	
137	Ba	115	198.724	393643	0.72	200	99.4	80	120	
205	Tl	209	207.659	5984205	0.68	200	103.8	80	120	
208	Pb	209	204.912	8044159	0.50	200	102.5	80	120	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1033502	0.52	985323	104.89	70	120	
72	Ge	729822	0.95	693391	105.25	70	120	
115	In	7331202	1.24	7239973	101.26	70	120	
209	Bi	17837617	1.83	17115037	104.22	70	120	

Dilution Sample (Dil) Report

Date Acquired	8/11/2016 17:12	Sample Name	1607337-10A SD
Data Batch	160811.b	Comment	SD ICPMS_TSDOD1
Data File Name	094_SD.d	Dilution	25

Mass	Name	IS	Conc	CPS	%RSD	Ref Value	%Rec	Low	High	Flag
7	Li	45	11.952	286	3.67	57.7	103.5	110	90	Good
9	Be	45	0.577	20	12.80	2.6	113.1	110	90	
11	B	45	78.495	1296	2.78	139.0	282.3	110	90	
23	Na	45	411.204	370804	0.50	1856.7	110.7	110	90	
24	Mg	45	2997.210	1208183	0.05	13912.3	107.7	110	90	Good
27	Al	45	12104.663	1831182	0.02	58061.5	104.2	110	90	Good
39	K	45	2845.618	1122375	0.21	13820.9	102.9	110	90	Good
44	Ca	45	49825.319	1102789	0.32	235359.6	105.8	110	90	Good
47	Ti	45	37.955	5724	7.05	190.1	99.8	110	90	Good
51	V	45	21.645	104776	0.86	104.3	103.8	110	90	Good
52	Cr	45	12.937	74353	0.48	61.4	105.3	110	90	Good
55	Mn	45	272.778	916083	0.29	1300.5	104.9	110	90	Good
56	Fe	45	13912.510	68464006	0.74	65373.8	106.4	110	90	Good
59	Co	72	8.144	73091	0.89	38.9	104.6	110	90	Good
60	Ni	72	7.181	20458	1.65	38.5	93.1	110	90	Good
63	Cu	72	1.227	17127	0.20	10.1	60.9	110	90	
66	Zn	72	29.441	34689	0.68	144.1	102.1	110	90	Good
75	As	72	3.902	3284	0.91	19.3	101.3	110	90	Good
78	Se	72	0.989	119	14.88	5.6	88.4	110	90	
88	Sr	115	101.038	457886	0.96	499.2	101.2	110	90	Good
95	Mo	115	0.487	1992	4.36	2.1	114.8	110	90	
107	Ag	115	0.025	352	4.27	0.1	174.6	110	90	
111	Cd	115	0.077	162	16.48	0.4	106.6	110	90	Good
118	Sn	115	0.448	5270	1.86	5.0	44.3	110	90	
121	Sb	115	0.090	767	8.05	0.4	117.2	110	90	
137	Ba	115	94.579	184821	0.57	459.3	103.0	110	90	Good
205	Tl	209	0.106	3582	2.25	0.5	103.4	110	90	Good
208	Pb	209	5.674	228665	0.66	28.9	98.3	110	90	Good

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1012355	0.24	985323	102.74	70	120	
72	Ge	720988	0.24	693391	103.98	70	120	
115	In	7230855	0.97	7239973	99.87	70	120	
209	Bi	18094336	1.19	17115037	105.72	70	120	

Post Digestion Spike Sample (PDS) Report

Date Acquired	8/11/2016 17:32	Sample Name	1607337-10A PDS
Data Batch	160811.b	Comment	PDS ICPMS_TSDOD1
Data File Name	104_PDS.d	Dilution	5

Mass	Name	IS	Conc	CPS	%RSD	Ref Conc	Spk Amt	%Rec	Low	High	Flag
7	Li	45	239.731	5696	2.78	57.7	200	91.0	75	125	
9	Be	45	193.973	6595	1.89	2.6	200	95.7	75	125	
11	B	45	286.723	4568	2.47	139.0	200	73.9	75	125	Fail
23	Na	45	6837.605	5601465	1.53	1856.7	5000	99.6	75	125	
24	Mg	45	18842.931	7704365	1.62	13912.3	5000	98.6	75	125	
27	Al	45	63278.972	9709385	0.83	58061.5	5000	104.4	75	125	
39	K	45	18794.291	7290683	2.19	13820.9	5000	99.5	75	125	
44	Ca	45	########	5466551	2.22	235359.6	5000	160.2	75	125	Fail
47	Ti	45	381.651	58412	0.80	190.1	200	95.8	75	125	
51	V	45	305.877	1471601	0.80	104.3	200	100.8	75	125	
52	Cr	45	266.759	1534179	0.67	61.4	200	102.7	75	125	
55	Mn	45	1501.117	5101754	0.74	1300.5	200	100.3	75	125	
56	Fe	45	71486.435	357065275	1.78	65373.8	5000	122.3	75	125	
59	Co	72	244.536	2160182	0.58	38.9	200	102.8	75	125	
60	Ni	72	234.078	571050	0.35	38.5	200	97.8	75	125	
63	Cu	72	199.679	1351361	0.36	10.1	200	94.8	75	125	
66	Zn	72	335.812	365740	0.34	144.1	200	95.8	75	125	
75	As	72	216.513	172603	0.30	19.3	200	98.6	75	125	
78	Se	72	196.655	10533	1.21	5.6	200	95.5	75	125	
88	Sr	115	709.576	3160321	1.34	499.2	200	105.2	75	125	
95	Mo	115	199.824	780780	0.86	2.1	200	98.9	75	125	
107	Ag	115	195.127	2285399	0.80	0.1	200	97.5	75	125	
111	Cd	115	191.298	334343	1.47	0.4	200	95.5	75	125	
118	Sn	115	206.077	810517	1.15	5.0	200	100.5	75	125	
121	Sb	115	199.489	1106048	0.26	0.4	200	99.6	75	125	
137	Ba	115	671.329	1290482	0.14	459.3	200	106.0	75	125	
205	Tl	209	201.861	5616891	0.53	0.5	200	100.7	75	125	
208	Pb	209	227.167	8610368	0.57	28.9	200	99.2	75	125	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1027895	1.75	985323	104.32	70	120	
72	Ge	710948	0.45	693391	102.53	70	120	
115	In	7118544	2.89	7239973	98.32	70	120	
209	Bi	17219838	0.86	17115037	100.61	70	120	

Matrix Spike Sample (MS) Report

Date Acquired	8/11/2016 17:34	Sample Name	1607337-10A MS
Data Batch	160811.b	Comment	MS ICPMS_TSDOD1
Data File Name	105_MSS.d	Dilution	5

Mass	Name	IS	Conc	CPS	%RSD	Ref Conc	Spk Amt	%Rec	Low	High	Flag
7	Li	45	240.479	5763	1.63	57.7	200	91.4	80	120	
9	Be	45	190.777	6541	0.59	2.6	200	94.1	80	120	
11	B	45	305.042	4894	5.90	139.0	200	83.0	80	120	
23	Na	45	6560.847	5420595	2.24	1856.7	1000	470.4	80	120	Fail
24	Mg	45	18349.723	7565345	0.56	13912.3	1000	443.7	80	120	Fail
27	Al	45	59029.369	9132290	3.11	58061.5	1000	96.8	80	120	
39	K	45	19065.776	7455911	0.91	13820.9	1000	524.5	80	120	Fail
44	Ca	45	########	5135401	1.31	235359.6	1000	-858.1	80	120	Fail
47	Ti	45	398.590	61524	0.85	190.1	200	104.2	80	120	
51	V	45	310.278	1505207	0.82	104.3	200	103.0	80	120	
52	Cr	45	264.492	1533997	0.87	61.4	200	101.5	80	120	
55	Mn	45	1300.517	4457508	0.35	1300.5	200	0.0	80	120	Fail
56	Fe	45	71202.257	358660946	0.80	65373.8	1000	582.8	80	120	Fail
59	Co	72	232.253	2058835	0.20	38.9	200	96.7	80	120	
60	Ni	72	235.139	575588	0.99	38.5	200	98.3	80	120	
63	Cu	72	206.759	1403790	0.77	10.1	200	98.3	80	120	
66	Zn	72	335.476	366644	0.36	144.1	200	95.7	80	120	
75	As	72	220.066	176039	0.58	19.3	200	100.4	80	120	
78	Se	72	202.586	10886	1.31	5.6	200	98.5	80	120	
88	Sr	115	699.842	3062437	0.86	499.2	200	100.3	80	120	
95	Mo	115	199.566	766331	1.09	2.1	200	98.7	80	120	
107	Ag	115	202.117	2326049	0.84	0.1	200	101.0	80	120	
111	Cd	115	201.164	345459	0.62	0.4	200	100.4	80	120	
118	Sn	115	212.797	822296	0.87	5.0	200	103.9	80	120	
121	Sb	115	76.992	419670	0.29	0.4	200	38.3	80	120	Fail
137	Ba	115	901.003	1702185	0.72	459.3	200	220.9	80	120	Fail
205	Tl	209	212.732	5802597	0.71	0.5	200	106.1	80	120	
208	Pb	209	234.417	8710384	0.71	28.9	200	102.8	80	120	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1036345	0.33	985323	105.18	70	120	
72	Ge	713429	0.71	693391	102.89	70	120	
115	In	6992817	1.22	7239973	96.59	70	120	
209	Bi	16882227	1.75	17115037	98.64	70	120	

Matrix Spike Sample (MS) Report

Date Acquired	8/11/2016 17:36	Sample Name	1607337-10A MSD
Data Batch	160811.b	Comment	MSD ICPMS_TSDOD1
Data File Name	106_MSS.d	Dilution	5

Mass	Name	IS	Conc	CPS	%RSD	Ref Conc	Spk Amt	%Rec	Low	High	Flag
7	Li	45	239.744	5785	2.05	57.7	200	91.0	80	120	
9	Be	45	196.757	6793	0.70	2.6	200	97.1	80	120	
11	B	45	301.623	4874	1.96	139.0	200	81.3	80	120	
23	Na	45	6589.830	5482255	0.75	1856.7	1000	473.3	80	120	Fail
24	Mg	45	18472.478	7668757	0.40	13912.3	1000	456.0	80	120	Fail
27	Al	45	59619.088	9287953	0.11	58061.5	1000	155.8	80	120	Fail
39	K	45	19008.343	7485046	2.08	13820.9	1000	518.7	80	120	Fail
44	Ca	45	########	5169120	0.63	235359.6	1000	-866.8	80	120	Fail
47	Ti	45	394.951	61383	0.59	190.1	200	102.4	80	120	
51	V	45	308.258	1505764	0.47	104.3	200	102.0	80	120	
52	Cr	45	268.032	1565257	0.45	61.4	200	103.3	80	120	
55	Mn	45	1342.274	4632346	0.21	1300.5	200	20.9	80	120	Fail
56	Fe	45	66341.023	336480049	0.91	65373.8	1000	96.7	80	120	
59	Co	72	234.571	2102669	1.05	38.9	200	97.8	80	120	
60	Ni	72	235.057	581844	0.16	38.5	200	98.3	80	120	
63	Cu	72	209.175	1436024	0.67	10.1	200	99.6	80	120	
66	Zn	72	335.196	370444	0.61	144.1	200	95.5	80	120	
75	As	72	219.650	177675	0.79	19.3	200	100.2	80	120	
78	Se	72	201.125	10929	1.04	5.6	200	97.8	80	120	
88	Sr	115	669.401	2997611	0.23	499.2	200	85.1	80	120	
95	Mo	115	196.857	773518	0.85	2.1	200	97.4	80	120	
107	Ag	115	201.111	2368190	0.83	0.1	200	100.5	80	120	
111	Cd	115	201.003	353212	0.30	0.4	200	100.3	80	120	
118	Sn	115	210.889	833853	0.53	5.0	200	102.9	80	120	
121	Sb	115	75.441	420774	0.35	0.4	200	37.5	80	120	Fail
137	Ba	115	723.182	1397863	1.49	459.3	200	132.0	80	120	Fail
205	Tl	209	215.410	5906616	0.63	0.5	200	107.4	80	120	
208	Pb	209	236.077	8818161	0.31	28.9	200	103.6	80	120	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1043514	0.14	985323	105.91	70	120	
72	Ge	721386	0.28	693391	104.04	70	120	
115	In	7155799	1.55	7239973	98.84	70	120	
209	Bi	16969165	0.70	17115037	99.15	70	120	

Continuing Calibration Verification (CCV) Report

Date Acquired	8/11/2016 17:38	Sample Name	CCV5-160811
Data Batch	160811.b	Comment	CCV ICPMS_TW
Data File Name	107_CCV.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
7	Li	45	189.845	4577	1.79	200	94.9	90	110	
9	Be	45	200.332	6908	0.79	200	100.2	90	110	
11	B	45	230.791	3747	3.38	200	115.4	90	110	Fail
23	Na	45	5215.872	4342905	1.13	5000	104.3	90	110	
24	Mg	45	5170.700	2144938	0.97	5000	103.4	90	110	
27	Al	45	4934.669	769874	1.12	5000	98.7	90	110	
39	K	45	5327.892	2126339	0.72	5000	106.6	90	110	
44	Ca	45	5001.396	114652	1.88	5000	100.0	90	110	
47	Ti	45	195.434	30341	1.40	200	97.7	90	110	
51	V	45	206.083	1006280	0.47	200	103.0	90	110	
52	Cr	45	209.641	1223023	0.84	200	104.8	90	110	
55	Mn	45	202.324	700508	0.23	200	101.2	90	110	
56	Fe	45	5075.507	25720801	0.36	5000	101.5	90	110	
59	Co	72	215.113	1952536	0.31	200	107.6	90	110	
60	Ni	72	209.319	524977	0.78	200	104.7	90	110	
63	Cu	72	209.657	1457458	0.99	200	104.8	90	110	
66	Zn	72	204.876	230210	0.21	200	102.4	90	110	
75	As	72	206.689	169305	0.44	200	103.3	90	110	
78	Se	72	204.945	11276	0.72	200	102.5	90	110	
88	Sr	115	200.103	921924	0.53	200	100.1	90	110	
95	Mo	115	204.751	827237	0.79	200	102.4	90	110	
107	Ag	115	211.189	2557244	0.65	200	105.6	90	110	
111	Cd	115	206.805	373683	0.02	200	103.4	90	110	
118	Sn	115	205.197	834383	0.24	200	102.6	90	110	
121	Sb	115	204.174	1170500	0.71	200	102.1	90	110	
137	Ba	115	203.333	404223	0.43	200	101.7	90	110	
205	Tl	209	213.907	6081706	0.96	200	107.0	90	110	
208	Pb	209	209.733	8123187	0.14	200	104.9	90	110	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1042417	1.23	985323	105.79	70	120	
72	Ge	730478	0.18	693391	105.35	70	120	
115	In	7357387	1.15	7239973	101.62	70	120	
209	Bi	17594699	0.74	17115037	102.80	70	120	

Low Level Calibration Verification (LLCV) Report

Date Acquired	8/11/2016 17:42	Sample Name	LCVL5-160811
Data Batch	160811.b	Comment	LCVLICPMS_TW
Data File Name	109LCCV.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
7	Li	45	10.275	257	4.38	10	102.8	70	130	
9	Be	45	0.996	35	4.95	1	99.6	70	130	
11	B	45	62.579	1091	2.47	20	312.9	70	130	Fail
23	Na	45	146.444	164911	0.55	100	146.4	70	130	Fail
24	Mg	45	108.533	46704	2.90	100	108.5	70	130	
27	Al	45	107.351	19097	0.46	100	107.4	70	130	
39	K	45	122.443	91385	0.71	100	122.4	70	130	
44	Ca	45	104.300	3165	1.06	100	104.3	70	130	
47	Ti	45	5.493	861	8.83	5	109.9	70	130	
51	V	45	0.976	7257	2.09	1	97.6	70	130	
52	Cr	45	5.484	33395	1.50	5	109.7	70	130	
55	Mn	45	5.379	22338	2.44	5	107.6	70	130	
56	Fe	45	115.079	596108	0.14	100	115.1	70	130	
59	Co	72	5.500	50893	1.42	5	110.0	70	130	
60	Ni	72	5.541	16915	0.71	5	110.8	70	130	
63	Cu	72	5.404	46987	1.66	5	108.1	70	130	
66	Zn	72	5.483	8650	1.62	5	109.7	70	130	
75	As	72	5.517	4728	3.95	5	110.3	70	130	
78	Se	72	5.875	394	7.23	5	117.5	70	130	
88	Sr	115	5.472	25941	1.34	5	109.4	70	130	
95	Mo	115	5.337	21575	0.43	5	106.7	70	130	
107	Ag	115	2.155	26104	1.20	2	107.8	70	130	
111	Cd	115	1.050	1918	2.92	1	105.0	70	130	
118	Sn	115	5.372	25243	0.93	5	107.4	70	130	
121	Sb	115	2.139	12492	1.91	2	106.9	70	130	
137	Ba	115	5.396	10783	1.69	5	107.9	70	130	
205	Tl	209	1.094	32255	1.55	1	109.4	70	130	
208	Pb	209	1.119	46985	0.80	1	111.9	70	130	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1051407	0.57	985323	106.71	70	120	
72	Ge	742725	0.83	693391	107.11	70	120	
115	In	7341289	1.32	7239973	101.40	70	120	
209	Bi	17980078	0.74	17115037	105.05	70	120	

Continuing Calibration Blank (CCB) Report

Date Acquired	8/11/2016 17:44	Sample Name	CCB5-160811
Data Batch	160811.b	Comment	CCB ICPMS_TW
Data File Name	110_CCB.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	MDL S	MDL Aq	QC Flag
7	Li	45	-0.047	6	66.7	2	5	
9	Be	45	0.038	2	69.3	0.4	0.3	
11	B	45	41.231	750	8.0	10	10	FailAq FailSoil
23	Na	45	24.105	63167	1.3	50	100	
24	Mg	45	-1.455	708	11.4	50	100	
27	Al	45	-1.843	1961	2.5	50	10	
39	K	45	2.605	44111	0.6	50	100	
44	Ca	45	-3.597	687	6.3	50	100	
47	Ti	45	0.049	9	43.3	4	3	
51	V	45	-0.065	2142	3.0	4	3	
52	Cr	45	-0.027	994	3.3	2	2	
55	Mn	45	-0.969	284	10.6	2	3	
56	Fe	45	2.585	21251	5.0	50	50	
59	Co	72	0.000	147	32.8	2	3	
60	Ni	72	-1.033	244	18.4	2	3	
63	Cu	72	-1.119	1183	6.3	2	2	
66	Zn	72	-1.812	410	4.3	4	2	
75	As	72	0.032	165	8.7	2	2	
78	Se	72	0.040	71	4.8	1	2	
88	Sr	115	0.014	886	1.2	4	3	
95	Mo	115	0.096	456	9.7	2	2	
107	Ag	115	0.020	309	12.1	0.4	1	
111	Cd	115	-0.003	21	24.1	0.4	0.3	
118	Sn	115	-0.630	1011	12.9	4	3	
121	Sb	115	0.027	421	10.0	2	0.8	
137	Ba	115	0.121	324	9.8	2	3	
205	Tl	209	0.020	1053	9.7	2	0.5	
208	Pb	209	0.033	3978	3.6	0.4	0.3	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1051406	0.38	985323	106.71	70	120	
72	Ge	754765	0.96	693391	108.85	70	120	
115	In	7431039	0.61	7239973	102.64	70	120	
209	Bi	17821632	1.18	17115037	104.13	70	120	

Continuing Calibration Verification (CCV) Report

Date Acquired	8/11/2016 18:04	Sample Name	CCV6-160811
Data Batch	160811.b	Comment	CCV ICPMS_TW
Data File Name	120_CCV.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
7	Li	45	195.221	4614	0.93	200	97.6	90	110	
9	Be	45	202.937	6860	2.14	200	101.5	90	110	
11	B	45	213.066	3397	3.79	200	106.5	90	110	
23	Na	45	5223.480	4263946	0.68	5000	104.5	90	110	
24	Mg	45	5208.615	2118318	1.27	5000	104.2	90	110	
27	Al	45	4990.258	763303	0.12	5000	99.8	90	110	
39	K	45	5365.237	2098822	0.97	5000	107.3	90	110	
44	Ca	45	5056.542	113660	2.44	5000	101.1	90	110	
47	Ti	45	199.396	30350	1.30	200	99.7	90	110	
51	V	45	207.357	992632	1.11	200	103.7	90	110	
52	Cr	45	211.807	1211490	0.61	200	105.9	90	110	
55	Mn	45	203.540	690920	0.78	200	101.8	90	110	
56	Fe	45	5203.526	25853460	0.78	5000	104.1	90	110	
59	Co	72	216.236	1938684	0.21	200	108.1	90	110	
60	Ni	72	210.913	522474	0.62	200	105.5	90	110	
63	Cu	72	209.382	1437709	0.15	200	104.7	90	110	
66	Zn	72	203.482	225859	0.19	200	101.7	90	110	
75	As	72	206.967	167456	0.53	200	103.5	90	110	
78	Se	72	203.981	11085	0.26	200	102.0	90	110	
88	Sr	115	204.484	906993	0.37	200	102.2	90	110	
95	Mo	115	209.600	815299	0.41	200	104.8	90	110	
107	Ag	115	213.788	2492349	0.52	200	106.9	90	110	
111	Cd	115	209.109	363771	0.67	200	104.6	90	110	
118	Sn	115	210.017	822078	0.45	200	105.0	90	110	
121	Sb	115	209.520	1156367	0.08	200	104.8	90	110	
137	Ba	115	210.280	402411	0.47	200	105.1	90	110	
205	Tl	209	214.686	5946806	0.86	200	107.3	90	110	
208	Pb	209	210.709	7950864	0.11	200	105.4	90	110	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1021966	1.22	985323	103.72	70	120	
72	Ge	721529	0.15	693391	104.06	70	120	
115	In	7083372	1.49	7239973	97.84	70	120	
209	Bi	17141812	0.77	17115037	100.16	70	120	

Low Level Calibration Verification (LLCV) Report

Date Acquired	8/11/2016 18:08	Sample Name	LCVL6-160811
Data Batch	160811.b	Comment	LCVLICPMS_TW
Data File Name	122LCCV.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
7	Li	45	10.505	261	0.89	10	105.0	70	130	
9	Be	45	0.944	33	13.21	1	94.4	70	130	
11	B	45	46.401	828	4.44	20	232.0	70	130	Fail
23	Na	45	141.922	160188	0.47	100	141.9	70	130	Fail
24	Mg	45	106.692	45661	0.87	100	106.7	70	130	
27	Al	45	104.739	18577	1.41	100	104.7	70	130	
39	K	45	122.346	90807	0.87	100	122.3	70	130	
44	Ca	45	114.859	3388	2.25	100	114.9	70	130	
47	Ti	45	5.713	890	8.27	5	114.3	70	130	
51	V	45	1.032	7487	2.36	1	103.2	70	130	
52	Cr	45	5.583	33777	0.50	5	111.7	70	130	
55	Mn	45	5.265	21816	1.17	5	105.3	70	130	
56	Fe	45	115.207	593273	1.39	100	115.2	70	130	
59	Co	72	5.512	50731	1.02	5	110.2	70	130	
60	Ni	72	5.465	16631	2.32	5	109.3	70	130	
63	Cu	72	5.335	46251	0.65	5	106.7	70	130	
66	Zn	72	5.298	8395	3.70	5	106.0	70	130	
75	As	72	5.302	4523	0.16	5	106.0	70	130	
78	Se	72	5.534	373	7.01	5	110.7	70	130	
88	Sr	115	5.377	25560	2.45	5	107.5	70	130	
95	Mo	115	5.165	20922	2.38	5	103.3	70	130	
107	Ag	115	2.115	25663	1.29	2	105.8	70	130	
111	Cd	115	1.075	1968	2.18	1	107.5	70	130	
118	Sn	115	5.273	24896	3.72	5	105.5	70	130	
121	Sb	115	2.088	12224	1.10	2	104.4	70	130	
137	Ba	115	5.347	10703	1.33	5	106.9	70	130	
205	Tl	209	1.103	31428	0.56	1	110.3	70	130	
208	Pb	209	1.109	45054	0.94	1	110.9	70	130	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1045210	0.90	985323	106.08	70	120	
72	Ge	738668	0.50	693391	106.53	70	120	
115	In	7354915	1.26	7239973	101.59	70	120	
209	Bi	17383165	1.70	17115037	101.57	70	120	

Continuing Calibration Blank (CCB) Report

Date Acquired	8/11/2016 18:10	Sample Name	CCB6-160811
Data Batch	160811.b	Comment	CCB ICPMS_TW
Data File Name	123_CCB.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	MDL S	MDL Aq	QC Flag
7	Li	45	0.050	8	56.7	2	5	
9	Be	45	-0.001	0	173.2	0.4	0.3	
11	B	45	26.621	514	10.7	10	10	FailAq FailSoil
23	Na	45	21.566	60811	0.3	50	100	
24	Mg	45	-1.596	647	8.0	50	100	
27	Al	45	-2.049	1921	1.0	50	10	
39	K	45	0.396	43066	0.7	50	100	
44	Ca	45	-0.682	751	15.4	50	100	
47	Ti	45	0.064	11	75.5	4	3	
51	V	45	-0.079	2068	1.9	4	3	
52	Cr	45	-0.023	1012	9.8	2	2	
55	Mn	45	-0.990	212	15.8	2	3	
56	Fe	45	2.215	19290	4.8	50	50	
59	Co	72	-0.005	91	28.4	2	3	
60	Ni	72	-1.016	280	2.1	2	3	
63	Cu	72	-1.129	1080	8.8	2	2	
66	Zn	72	-1.821	389	16.4	4	2	
75	As	72	0.030	159	2.2	2	2	
78	Se	72	0.113	73	19.3	1	2	
88	Sr	115	0.022	910	2.5	4	3	
95	Mo	115	0.059	300	5.6	2	2	
107	Ag	115	0.012	200	8.7	0.4	1	
111	Cd	115	-0.006	16	12.4	0.4	0.3	
118	Sn	115	-0.688	764	13.8	4	3	
121	Sb	115	0.009	316	13.0	2	0.8	
137	Ba	115	0.021	122	22.0	2	3	
205	Tl	209	0.007	664	12.6	2	0.5	
208	Pb	209	0.016	3248	3.5	0.4	0.3	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1047240	0.55	985323	106.28	70	120	
72	Ge	735642	1.07	693391	106.09	70	120	
115	In	7351490	2.24	7239973	101.54	70	120	
209	Bi	17423175	1.52	17115037	101.80	70	120	

Method Blank Report

Date Acquired	8/11/16 6:12 PM	Sample Name	MB-76774
Data Batch	160811.b	Comment	MBLKICPMS_TWDOD
Data File Name	124_LRB.d	Dilution	1

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
7	Li	45	0.101	10	56.97		
9	Be	45	0.018	1	0.00		
11	B	45	27.579	537	3.29		J
23	Na	45	25.966	65284	1.04		
24	Mg	45	0.755	1647	3.78		
27	Al	45	-3.075	1783	2.33		
39	K	45	4.020	45062	0.96		
44	Ca	45	-6.269	631	9.02		
47	Ti	45	0.063	11	34.61		
51	V	45	-0.082	2079	3.94		
52	Cr	45	-0.003	1144	6.55		
55	Mn	45	0.910	6876	3.03		
56	Fe	45	32.714	176765	0.88		
59	Co	72	0.006	196	2.60		
60	Ni	72	-0.863	676	11.85		
63	Cu	72	0.114	9874	2.45		
66	Zn	72	-0.906	1435	2.69		
75	As	72	0.000	136	15.07		
78	Se	72	0.149	76	27.32		
88	Sr	115	-0.034	667	11.82		
95	Mo	115	0.038	220	4.55		
107	Ag	115	0.010	188	22.05		
111	Cd	115	-0.005	17	52.93		
118	Sn	115	-0.644	961	8.60		
121	Sb	115	0.011	334	8.30		
137	Ba	115	0.006	93	30.52		
205	Tl	209	0.000	461	3.01		
208	Pb	209	0.007	2979	4.78		

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1060668	0.77	985323	107.65	70	120	
72	Ge	746475	0.91	693391	107.66	70	120	
115	In	7510837	0.94	7239973	103.74	70	120	
209	Bi	17815649	1.24	17115037	104.09	70	120	

Laboratory Control Sample (LCS) Report

Date Acquired	8/11/2016 18:14	Sample Name	LCS-76774
Data Batch	160811.b	Comment	LCS ICPMS_TWDOD
Data File Name	125_LFB.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
7	Li	45	191.607	4634	2.13	200	95.8	80	120	
9	Be	45	196.538	6799	1.64	200	98.3	80	120	
11	B	45	211.477	3452	3.43	200	105.7	80	120	
23	Na	45	5138.523	4292866	0.49	5000	102.8	80	120	
24	Mg	45	5077.651	2113148	0.69	5000	101.6	80	120	
27	Al	45	4831.914	756310	0.43	5000	96.6	80	120	
39	K	45	5293.525	2119589	0.66	5000	105.9	80	120	
44	Ca	45	4900.850	112721	0.72	5000	98.0	80	120	
47	Ti	45	196.512	30604	0.60	200	98.3	80	120	
51	V	45	202.554	992213	1.49	200	101.3	80	120	
52	Cr	45	205.437	1202374	0.23	200	102.7	80	120	
55	Mn	45	197.426	685801	0.11	200	98.7	80	120	
56	Fe	45	4978.594	25309256	1.97	5000	99.6	80	120	
59	Co	72	209.030	1916993	0.33	200	104.5	80	120	
60	Ni	72	204.628	518589	0.66	200	102.3	80	120	
63	Cu	72	203.952	1432738	0.59	200	102.0	80	120	
66	Zn	72	199.021	226022	0.55	200	99.5	80	120	
75	As	72	200.816	166202	0.85	200	100.4	80	120	
78	Se	72	200.979	11173	0.31	200	100.5	80	120	
88	Sr	115	206.690	924488	1.02	200	103.3	80	120	
95	Mo	115	205.440	805856	0.44	200	102.7	80	120	
107	Ag	115	208.831	2455070	0.78	200	104.4	80	120	
111	Cd	115	206.207	361747	0.76	200	103.1	80	120	
118	Sn	115	203.453	803181	0.68	200	101.7	80	120	
121	Sb	115	201.507	1121530	0.96	200	100.8	80	120	
137	Ba	115	204.793	395215	1.02	200	102.4	80	120	
205	Tl	209	204.573	5780927	1.19	200	102.3	80	120	
208	Pb	209	201.194	7745202	0.56	200	100.6	80	120	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1045608	0.36	985323	106.12	70	120	
72	Ge	738060	0.32	693391	106.44	70	120	
115	In	7143283	1.74	7239973	98.66	70	120	
209	Bi	17487453	0.37	17115037	102.18	70	120	

Laboratory Control Sample (LCS) Report

Date Acquired	8/11/2016 18:16	Sample Name	LCSD-76774
Data Batch	160811.b	Comment	LCSDICPMS_TWDOD
Data File Name	126_LFB.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
7	Li	45	192.442	4629	1.22	200	96.2	80	120	
9	Be	45	196.088	6747	1.26	200	98.0	80	120	
11	B	45	219.859	3565	2.35	200	109.9	80	120	
23	Na	45	5129.674	4262097	0.68	5000	102.6	80	120	
24	Mg	45	5058.265	2093543	0.50	5000	101.2	80	120	
27	Al	45	4846.036	754370	1.21	5000	96.9	80	120	
39	K	45	5248.444	2090594	1.54	5000	105.0	80	120	
44	Ca	45	4821.606	110314	0.88	5000	96.4	80	120	
47	Ti	45	201.355	31189	1.70	200	100.7	80	120	
51	V	45	204.435	995973	1.05	200	102.2	80	120	
52	Cr	45	207.052	1205242	1.19	200	103.5	80	120	
55	Mn	45	202.552	699715	0.58	200	101.3	80	120	
56	Fe	45	4862.899	24587146	0.98	5000	97.3	80	120	
59	Co	72	210.878	1931134	0.91	200	105.4	80	120	
60	Ni	72	204.463	517453	1.04	200	102.2	80	120	
63	Cu	72	206.656	1449576	0.40	200	103.3	80	120	
66	Zn	72	199.877	226669	0.40	200	99.9	80	120	
75	As	72	202.194	167114	0.35	200	101.1	80	120	
78	Se	72	198.193	11004	1.79	200	99.1	80	120	
88	Sr	115	200.378	923440	0.57	200	100.2	80	120	
95	Mo	115	198.735	803272	1.13	200	99.4	80	120	
107	Ag	115	202.542	2453444	0.35	200	101.3	80	120	
111	Cd	115	201.302	363858	0.09	200	100.7	80	120	
118	Sn	115	199.949	813381	0.15	200	100.0	80	120	
121	Sb	115	197.030	1129930	0.47	200	98.5	80	120	
137	Ba	115	197.245	392260	0.65	200	98.6	80	120	
205	Tl	209	205.832	5780728	1.17	200	102.9	80	120	
208	Pb	209	204.856	7837979	1.04	200	102.4	80	120	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1040036	1.29	985323	105.55	70	120	
72	Ge	737109	1.29	693391	106.30	70	120	
115	In	7360332	1.59	7239973	101.66	70	120	
209	Bi	17384047	2.06	17115037	101.57	70	120	

Sample Report

Date Acquired	8/11/16 6:20 PM	Sample Name	1607317-39A
Data Batch	160811.b	Comment	SAMPICPMS_TWDOD
Data File Name	128_ARF.d	Dilution	1

Mass	Name	IS	Conc (ppb)	CPS	%RSD	High Limit	Flag
7	Li	45	0.044	8	36.66	2000	
9	Be	45	0.094	4	103.25	2000	
11	B	45	46.391	844	7.46	2000	>RL
23	Na	45	113.804	139701	0.76	25000	>RL
24	Mg	45	7.468	4502	2.07	25000	
27	Al	45	4.178	2948	8.59	10000	
39	K	45	5.315	45815	0.25	25000	
44	Ca	45	23.260	1323	4.27	25000	
47	Ti	45	0.090	16	89.22	2000	
51	V	45	-0.067	2165	8.71	2000	
52	Cr	45	0.026	1328	5.37	2000	
55	Mn	45	-0.899	536	10.96	2000	
56	Fe	45	2.824	22790	0.41	10000	
59	Co	72	0.008	220	4.01	2000	
60	Ni	72	-0.990	353	14.28	2000	
63	Cu	72	-1.047	1688	1.79	2000	
66	Zn	72	-0.945	1401	5.35	2000	
75	As	72	0.042	173	6.36	2000	
78	Se	72	0.363	89	12.78	2000	
88	Sr	115	0.434	2824	2.15	2000	
95	Mo	115	0.149	666	13.40	2000	
107	Ag	115	0.026	376	8.00	500	
111	Cd	115	0.007	39	43.98	2000	
118	Sn	115	-0.417	1871	5.35	2000	
121	Sb	115	0.065	637	17.69	500	
137	Ba	115	0.043	168	8.03	2000	
205	Tl	209	0.036	1509	17.98	2000	
208	Pb	209	0.027	3776	3.98	2000	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1066230	0.74	985323	108.21	70	120	
72	Ge	752197	0.23	693391	108.48	70	120	
115	In	7396241	0.86	7239973	102.16	70	120	
209	Bi	17896520	1.98	17115037	104.57	70	120	

Dilution Sample (Dil) Report

Date Acquired	8/11/2016 18:22	Sample Name	1607317-39A SD
Data Batch	160811.b	Comment	SD ICPMS_TWDOD
Data File Name	129_SD.d	Dilution	5

Mass	Name	IS	Conc	CPS	%RSD	Ref Value	%Rec	Low	High	Flag
7	Li	45	-0.034	6	50.76	0.0	-379.4	110	90	
9	Be	45	-0.010	0	#DIV/0!	0.1	-54.8	110	90	
11	B	45	29.664	568	8.14	46.4	319.7	110	90	
23	Na	45	49.213	84439	0.27	113.8	216.2	110	90	
24	Mg	45	1.430	1923	10.96	7.5	95.8	110	90	Good
27	Al	45	1.301	2466	4.40	4.2	155.8	110	90	
39	K	45	8.973	46842	1.08	5.3	844.1	110	90	
44	Ca	45	5.921	910	2.63	23.3	127.3	110	90	
47	Ti	45	0.063	11	45.82	0.1	349.2	110	90	
51	V	45	-0.064	2156	4.62	-0.1	482.4	110	90	
52	Cr	45	-0.017	1057	4.45	0.0	-328.4	110	90	
55	Mn	45	-0.161	3108	2.45	-0.9	89.5	110	90	
56	Fe	45	1.099	13720	2.54	2.8	194.5	110	90	
59	Co	72	-0.001	133	7.50	0.0	-45.8	110	90	
60	Ni	72	-0.178	2408	9.20	-1.0	89.7	110	90	
63	Cu	72	-0.256	7223	3.42	-1.0	122.3	110	90	
66	Zn	72	-0.192	2235	4.37	-0.9	101.4	110	90	Good
75	As	72	0.043	171	8.76	0.0	503.4	110	90	
78	Se	72	0.202	78	5.00	0.4	277.7	110	90	
88	Sr	115	0.106	1300	3.15	0.4	122.6	110	90	
95	Mo	115	0.081	388	12.20	0.1	271.4	110	90	
107	Ag	115	0.016	248	21.75	0.0	301.1	110	90	
111	Cd	115	0.000	26	41.94	0.0	-19.5	110	90	
118	Sn	115	-0.124	3048	2.82	-0.4	148.7	110	90	
121	Sb	115	0.027	419	9.22	0.1	211.6	110	90	
137	Ba	115	0.033	146	13.02	0.0	377.3	110	90	
205	Tl	209	0.015	871	3.83	0.0	203.6	110	90	
208	Pb	209	0.022	3494	4.08	0.0	405.7	110	90	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1056326	0.53	985323	107.21	70	120	
72	Ge	742525	0.64	693391	107.09	70	120	
115	In	7356466	2.20	7239973	101.61	70	120	
209	Bi	17489552	1.48	17115037	102.19	70	120	

Post Digestion Spike Sample (PDS) Report

Date Acquired	8/11/2016 18:24	Sample Name	1607317-39A PDS
Data Batch	160811.b	Comment	PDS ICPMS_TWDOD
Data File Name	130_PDS.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Ref Conc	Spk Amt	%Rec	Low	High	Flag
7	Li	45	184.872	4500	2.65	0.0	200	92.4	75	125	
9	Be	45	193.033	6720	1.09	0.1	200	96.5	75	125	
11	B	45	219.186	3597	3.11	46.4	200	86.4	75	125	
23	Na	45	5155.617	4334141	0.23	113.8	5000	100.8	75	125	
24	Mg	45	5003.403	2095384	0.57	7.5	5000	99.9	75	125	
27	Al	45	4873.912	767682	0.29	4.2	5000	97.4	75	125	
39	K	45	5164.291	2081911	0.59	5.3	5000	103.2	75	125	
44	Ca	45	4631.900	107244	1.32	23.3	5000	92.2	75	125	
47	Ti	45	191.769	30056	2.61	0.1	200	95.8	75	125	
51	V	45	200.917	990454	0.93	-0.1	200	100.5	75	125	
52	Cr	45	208.413	1227483	0.11	0.0	200	104.2	75	125	
55	Mn	45	193.479	676386	0.93	-0.9	200	97.2	75	125	
56	Fe	45	4884.717	24987328	1.23	2.8	5000	97.6	75	125	
59	Co	72	205.327	1891897	0.42	0.0	200	102.7	75	125	
60	Ni	72	197.854	503875	0.30	-1.0	200	99.4	75	125	
63	Cu	72	196.271	1385598	0.62	-1.0	200	98.7	75	125	
66	Zn	72	192.484	219697	0.12	-0.9	200	96.7	75	125	
75	As	72	196.268	163203	0.70	0.0	200	98.1	75	125	
78	Se	72	191.132	10679	1.02	0.4	200	95.4	75	125	
88	Sr	115	194.329	910923	0.91	0.4	200	96.9	75	125	
95	Mo	115	186.432	766410	0.93	0.1	200	93.1	75	125	
107	Ag	115	194.399	2395108	0.90	0.0	200	97.2	75	125	
111	Cd	115	191.791	352598	0.12	0.0	200	95.9	75	125	
118	Sn	115	195.631	809508	0.64	-0.4	200	98.0	75	125	
121	Sb	115	175.238	1022126	0.95	0.1	200	87.6	75	125	
137	Ba	115	192.687	389736	0.51	0.0	200	96.3	75	125	
205	Tl	209	197.184	5632489	0.62	0.0	200	98.6	75	125	
208	Pb	209	195.821	7620161	0.28	0.0	200	97.9	75	125	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1052266	0.92	985323	106.79	70	120	
72	Ge	741548	0.93	693391	106.95	70	120	
115	In	7486824	1.87	7239973	103.41	70	120	
209	Bi	17677984	0.90	17115037	103.29	70	120	

Continuing Calibration Verification (CCV) Report

Date Acquired	8/11/2016 18:26	Sample Name	CCV7-160811
Data Batch	160811.b	Comment	CCV ICPMS_TW
Data File Name	131_CCV.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
7	Li	45	195.977	4736	4.24	200	98.0	90	110	
9	Be	45	202.513	7000	2.36	200	101.3	90	110	
11	B	45	202.935	3313	2.43	200	101.5	90	110	
23	Na	45	5310.351	4431270	0.78	5000	106.2	90	110	
24	Mg	45	5221.516	2171165	0.51	5000	104.4	90	110	
27	Al	45	4972.159	777570	0.29	5000	99.4	90	110	
39	K	45	5399.650	2159475	0.75	5000	108.0	90	110	
44	Ca	45	4989.547	114657	0.94	5000	99.8	90	110	
47	Ti	45	198.571	30899	0.55	200	99.3	90	110	
51	V	45	207.146	1013824	0.53	200	103.6	90	110	
52	Cr	45	210.526	1231106	0.68	200	105.3	90	110	
55	Mn	45	205.372	712658	0.54	200	102.7	90	110	
56	Fe	45	5052.101	25662071	1.20	5000	101.0	90	110	
59	Co	72	214.862	1959538	0.85	200	107.4	90	110	
60	Ni	72	210.438	530277	0.25	200	105.2	90	110	
63	Cu	72	209.313	1461987	0.81	200	104.7	90	110	
66	Zn	72	203.443	229704	0.66	200	101.7	90	110	
75	As	72	205.339	168999	0.26	200	102.7	90	110	
78	Se	72	204.286	11293	1.47	200	102.1	90	110	
88	Sr	115	207.834	920868	0.48	200	103.9	90	110	
95	Mo	115	212.788	826861	0.32	200	106.4	90	110	
107	Ag	115	217.564	2533465	0.75	200	108.8	90	110	
111	Cd	115	209.887	364714	0.21	200	104.9	90	110	
118	Sn	115	210.325	822268	0.71	200	105.2	90	110	
121	Sb	115	213.660	1178027	0.77	200	106.8	90	110	
137	Ba	115	207.327	396419	0.79	200	103.7	90	110	
205	Tl	209	210.272	5890780	0.30	200	105.1	90	110	
208	Pb	209	207.477	7918001	0.51	200	103.7	90	110	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1044759	0.53	985323	106.03	70	120	
72	Ge	733952	0.05	693391	105.85	70	120	
115	In	7081197	3.63	7239973	97.81	70	120	
209	Bi	17337529	0.91	17115037	101.30	70	120	

Low Level Calibration Verification (LLCV) Report

Date Acquired	8/11/2016 18:30	Sample Name	LCVL7-160811
Data Batch	160811.b	Comment	LCVLICPMS_TW
Data File Name	133LCCV.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	Exp	%Rec	Low	High	Flag
7	Li	45	10.231	257	6.26	10	102.3	70	130	
9	Be	45	1.020	36	19.25	1	102.0	70	130	
11	B	45	41.923	766	4.14	20	209.6	70	130	Fail
23	Na	45	139.476	159989	0.30	100	139.5	70	130	Fail
24	Mg	45	108.593	46982	1.71	100	108.6	70	130	
27	Al	45	106.906	19130	0.88	100	106.9	70	130	
39	K	45	122.534	91926	0.56	100	122.5	70	130	
44	Ca	45	107.926	3266	5.47	100	107.9	70	130	
47	Ti	45	4.804	758	7.50	5	96.1	70	130	
51	V	45	1.068	7750	2.39	1	106.8	70	130	
52	Cr	45	5.468	33486	1.25	5	109.4	70	130	
55	Mn	45	5.223	21919	1.31	5	104.5	70	130	
56	Fe	45	112.129	584188	1.13	100	112.1	70	130	
59	Co	72	5.537	51385	0.80	5	110.7	70	130	
60	Ni	72	5.474	16793	2.01	5	109.5	70	130	
63	Cu	72	5.320	46534	0.42	5	106.4	70	130	
66	Zn	72	5.218	8376	2.43	5	104.4	70	130	
75	As	72	5.351	4602	1.02	5	107.0	70	130	
78	Se	72	5.792	391	8.81	5	115.8	70	130	
88	Sr	115	5.306	25387	2.38	5	106.1	70	130	
95	Mo	115	5.295	21582	1.13	5	105.9	70	130	
107	Ag	115	2.146	26204	0.85	2	107.3	70	130	
111	Cd	115	1.106	2036	4.51	1	110.6	70	130	
118	Sn	115	5.407	25596	0.64	5	108.1	70	130	
121	Sb	115	2.467	14485	2.73	2	123.3	70	130	
137	Ba	115	5.325	10728	1.21	5	106.5	70	130	
205	Tl	209	1.117	31941	1.11	1	111.7	70	130	
208	Pb	209	1.108	45181	1.71	1	110.8	70	130	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1057241	1.02	985323	107.30	70	120	
72	Ge	744913	0.70	693391	107.43	70	120	
115	In	7400536	0.21	7239973	102.22	70	120	
209	Bi	17449604	1.92	17115037	101.95	70	120	

Continuing Calibration Blank (CCB) Report

Date Acquired	8/11/2016 18:47	Sample Name	CCB7-160811
Data Batch	160811.b	Comment	CCB ICPMS_TW
Data File Name	141_CCB.d	Dilution	1

Mass	Name	IS	Conc	CPS	%RSD	MDL S	MDL Aq	QC Flag
7	Li	45	-0.076	5	10.8	2	5	
9	Be	45	-0.001	0	173.2	0.4	0.3	
11	B	45	18.908	397	5.5	10	10	FailAq FailSoil
23	Na	45	14.330	55487	0.7	50	100	
24	Mg	45	-2.009	480	9.8	50	100	
27	Al	45	-2.535	1868	2.7	50	10	
39	K	45	2.137	44285	1.1	50	100	
44	Ca	45	-7.575	601	5.0	50	100	
47	Ti	45	0.035	7	50.0	4	3	
51	V	45	-0.052	2227	8.3	4	3	
52	Cr	45	-0.040	926	4.2	2	2	
55	Mn	45	-1.010	146	17.2	2	3	
56	Fe	45	1.015	13336	1.6	50	50	
59	Co	72	-0.007	80	19.1	2	3	
60	Ni	72	-1.031	244	18.0	2	3	
63	Cu	72	-1.159	881	6.9	2	2	
66	Zn	72	-1.803	412	6.6	4	2	
75	As	72	-0.006	131	11.7	2	2	
78	Se	72	-0.136	59	19.0	1	2	
88	Sr	115	0.017	879	12.8	4	3	
95	Mo	115	0.016	127	10.5	2	2	
107	Ag	115	0.008	157	10.6	0.4	1	
111	Cd	115	-0.011	6	124.9	0.4	0.3	
118	Sn	115	-0.713	654	5.5	4	3	
121	Sb	115	0.036	461	12.1	2	0.8	
137	Ba	115	0.121	319	21.5	2	3	
205	Tl	209	-0.005	302	14.0	2	0.5	
208	Pb	209	-0.012	2167	4.7	0.4	0.3	

QC ISTD Table

Mass	Name	CPS	%RSD	Ref CPS	%Rec	Low	High	QC Flag
45	Sc	1060016	0.06	985323	107.58	70	120	
72	Ge	741387	1.14	693391	106.92	70	120	
115	In	7274680	1.15	7239973	100.48	70	120	
209	Bi	17389358	1.38	17115037	101.60	70	120	

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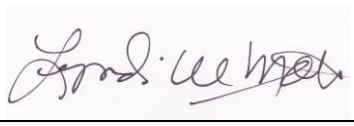

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DHL ANALYTICAL
2300 Double Creek Dr. ■ Round Rock, TX 78664
Phone (512) 388-8222 ■ FAX (512) 388-8229
Web: www.dhlanalytical.com
E-Mail: login@dhlanalytical.com

№ 72229

CHAIN-OF-CUSTODY

CLIENT: ARCADIS
ADDRESS: 8725 Rosehill Suite 350 Lenexa, KS 66215
PHONE: 913-492-0900 FAX/E-MAIL: Alex.Walter@arcadis.com
DATA REPORTED TO: Alex Walter
ADDITIONAL REPORT COPIES TO:

DATE: 7-28-16 PAGE 1 OF 2
PO #: 04285081.0000.00044 DHL WORK ORDER #: 1607337
PROJECT LOCATION OR NAME: Laredo SGR
CLENT PROJECT #: 04285081.0000.00044 COLLECTOR: Jordan Beem

Authorize 5% surcharge for TRRP Report? ❑ Yes ❑ No

S=SOIL W=WATER A=AIR L=LIQUID SE=SEDIMENT P=PAINT SL=SLUDGE O=OTHER SO=SOLID

PRESERVATION: HCl, HNO_3, H_2SO_4 ❑ NaOH ❑, ICE, UNPRESERVED

ANALYSES: BTEX ❑ MTBE ❑ [METHOD 8021] TPH 1005 ❑ TPH 1006 ❑ HOLD 1006 ❑ GRO [METHOD 8015] ❑ DRO [METHOD 8105] ❑ VOC 8260 ❑ VOC 624 ❑ VOC 8260/5035 ❑ SVOC 8270 ❑ PAH 8270 ❑ HOLD PAH ❑ SVOC 625 ❑ 8270 PEST ❑ 625 PEST/PCB ❑ 608 PCB ❑ 8270 O-P PEST ❑ 8082 PCB ❑ 8270 PCB ❑ 8321 HERB ❑ T PHOS, AMMONIA ❑ METALS 6020 ❑ METALS 200.8 ❑ DISS. METALS ❑ # 1 Lead RCRA ❑ TX11 ❑ PH ❑ HEX CHROM ❑ ALKALINITY ❑ COD ❑ CHLORIDE ❑ ANIONS ❑ TCLP-SVOC ❑ VOC ❑ PEST ❑ HERB ❑ TCLP-METALS ❑ RCRA 8 ❑ TX-11 ❑ Pb ❑ RCI ❑ FLASHPOINT ❑ DGAS ❑ TDS ❑ TSS ❑ % MOISTURE ❑ CYANIDE ❑

Field Sample I.D.	DHL Lab #	Date	Time	Matrix	Container Type	# of Containers	HCl	HNO_3	H_2SO_4 ❑ NaOH ❑	ICE	UNPRESERVED	ANALYSES	FIELD NOTES
SGR-DU009(0-2)-A	01	7-28-16	0939	S	Bag	1				X		X X X	
SGR-DU009(2-4)-A	02	7-28-16	0940	S	Bag	1				X		X X X	
SGR-DU009(4-6)-A	03	7-28-16	0941	S	Bag	1				X		X X X	
SGR-DU009(6-8)-A	04	7-28-16	0942	S	Bag	1				X		X X X	
~~SGR-DU009(8-10)-A~~		~~7-28-16~~		S	Bag	1				X		X X X	
SGR-DU009(0-2)-B	05	7-28-16	0944	S	Bag	1				X		X X X	
SGR-DU009(2-4)-B	06	7-28-16	0945	S	Bag	1				X		X X X	
SGR-DU009(4-6)-B	07	7-28-16	0946	S	Bag	1				X		X X X	
SGR-DU009(6-8)-B	08	7-28-16	0947	S	Bag	1				X		X X X	
~~SGR-DU009(8-10)-B~~		~~7-28-16~~		S	Bag	1				X		X X X	
SGR-DU009(0-2)-C	09	7-28-16	0949	S	Bag	1				X		X X X	
SGR-DU009(2-4)-C	10	7-28-16	0950	S	Bag	1				X		X X X	
SGR-DU009(4-6)-C	11	7-28-16	0951	S	Bag	1				X		X X X	
SGR-DU009(6-8)-C	12	7-28-16	0952	S	Bag	1				X		X X X	
~~SGR-DU009(8-10)-C~~		~~7-28-16~~		S	Bag	1		~~X~~		X		X X X	

RELINQUISHED BY: (Signature) Jordan Beem DATE/TIME 7-28-16 / 1530 RECEIVED BY: (Signature) Fedex
RELINQUISHED BY: (Signature) Fedex DATE/TIME 7/29/16 9:40 RECEIVED BY: (Signature) Storage
RELINQUISHED BY: (Signature) DATE/TIME RECEIVED BY: (Signature)

❑ DHL DISPOSAL @ $5.00 each ❑ Return

TURN AROUND TIME
RUSH ❑ CALL FIRST
1 DAY ❑ CALL FIRST
2 DAY ❑
NORMAL X
OTHER ❑ _____

LABORATORY USE ONLY:
RECEIVING TEMP: 1.3/0.1/0.5 THERM #: 796
CUSTODY SEALS: ❑ BROKEN X INTACT ❑ NOT USED
CARRIER: ❑ LONE STAR X FEDEX ❑ UPS ❑ OTHER
❑ COURIER DELIVERY
❑ HAND DELIVERED

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№ 72230

CHAIN-OF-CUSTODY

CLIENT: ARCADIS.
ADDRESS: 8725 Rosehill Suite 350 Lenexa, KS 66215
PHONE: 913-492-0900 FAX/E-MAIL: Alex.Walter@arcadis.com
DATA REPORTED TO: Alex Walter
ADDITIONAL REPORT COPIES TO:

DATE: 7-28-16 PAGE 2 OF 2
PO #: 04285081.0000.00044 DHL WORK ORDER #: 1160733?
PROJECT LOCATION OR NAME: Laredo SGR
CLENT PROJECT #: 04285081.0000.00044 COLLECTOR: Jordon Beem

Authorize 5% surcharge for TRRP Report? ☐ Yes ☐ No

S=SOIL W=WATER A=AIR L=LIQUID SE=SEDIMENT P=PAINT SL=SLUDGE O=OTHER SO=SOLID

PRESERVATION: HCl | HNO_3 | H_2SO_4 ☐ NaOH ☐ | ICE | UNPRESERVED

ANALYSES: BTEX ☐ MTBE ☐ [METHOD 8021] | TPH 1005 ☐ TPH 1006 ☐ HOLD 1006 ☐ | GRO [METHOD 8015] ☐ DRO [METHOD 8105] ☐ | VOC 8260 ☐ VOC 624 ☐ VOC 8260/5035 ☐ | SVOC 8270 ☐ PAH 8270 ☐ HOLD PAH ☐ SVOC 625 ☐ | 8270 PEST ☐ 625 PEST/PCB ☐ 608 PCB ☐ 608 PCB ☐ | 8270 O-P PEST ☐ 8082 PCB ☐ 8270 PCB ☐ | 8321 HERB ☐ T PHOS, AMMONIA ☐ | METALS 6020 ☐ METALS 200.8 ☐ DISS. METALS ☐ | RCRA ☐ TX11 ☐ | PH ☐ HEX CHROM ☐ ALKALINITY ☐ COD ☐ | CHLORIDE ☐ ANIONS ☐ | TCLP-SVOC ☐ VOC ☐ PEST ☐ HERB ☐ | TCLP-METALS ☐ RCRA 8 ☐ TX-11 ☐ Pb ☐ | RCI ☐ FLASHPOINT ☐ DGAS ☐ | TDS ☐ TSS ☐ % MOISTURE ☐ CYANIDE ☐

Field Sample I.D.	DHL Lab #	Date	Time	Matrix	Container Type	# of Containers	HCl	HNO_3	H_2SO_4 ☐ NaOH ☐	ICE	UNPRESERVED	ANALYSES	FIELD NOTES
EB01(20160728)	13	7-28-16	1000	W	Poly/Glass	2		X		X		X X	
SGR-DU105(0-2)-A	14	7-28-16	1230	S	Bag	1				X		X X	
SGR-DU105(2-4)-A	15	7-28-16	1232	S	Bag	1				X		X X	
SGR-DU105(4-6)-A	16	7-28-16	1234	S	Bag	1				X		X X	
SGR-DU105(6-8)-A	17	7-28-16	1236	S	Bag	1				X		X X	
SGR-DU105(0-2)-B	18	7-28-16	1240	S	Bag	1				X		X X	
SGR-DU105(2-4)-B	19	7-28-16	1242	S	Bag	1				X		X X	
SGR-DU105(4-6)-B	20	7-28-16	1244	S	Bag	1				X		X X	
SGR-DU105(6-8)-B	21	7-28-16	1246	S	Bag	1				X		X X	
SGR-DU105(0-2)-C	22	7-28-16	1250	S	Bag	1				X		X X	
SGR-DU105(2-4)-C	23	7-28-16	1252	S	Bag	1				X		X X	
SGR-DU105(4-6)-C	24	7-28-16	1254	S	Bag	1				X		X X	
SGR-DU105(6-8)-C	25	7-28-16	1256	S	Bag	1				X		X X	
EB02(20160728)	26	7-28-16	1300	W	Poly/Glass	2		X		X		X X	

RELINQUISHED BY: (Signature) Jordon Beem DATE/TIME 7-28-16/1530 RECEIVED BY: (Signature) FedEx
RELINQUISHED BY: (Signature) FedEx DATE/TIME 7/29/16 9:40 RECEIVED BY: (Signature) Storage
RELINQUISHED BY: (Signature) DATE/TIME RECEIVED BY: (Signature)

☐ DHL DISPOSAL @ $5.00 each ☐ Return

4

TURN AROUND TIME
RUSH ☐ CALL FIRST
1 DAY ☐ CALL FIRST
2 DAY ☐
NORMAL ☒
OTHER ☐ _____

LABORATORY USE ONLY:
RECEIVING TEMP: 1.3/0.1/0.5 THERM #: 78
CUSTODY SEALS: ☐ BROKEN ☒ INTACT ☐ NOT USED
CARRIER: ☐ LONE STAR ☒ FEDEX ☐ UPS ☐ OTHER
☐ COURIER DELIVERY
☐ HAND DELIVERED

DHL Analytical, Inc.

Sample Receipt Checklist

Client Name **Arcadis** Date Received: **7/29/2016**

Work Order Number **1607337** Received by **JT**

Checklist completed by: _____ 7/29/2016 Reviewed by DL 7/29/2016
Signature Date Initials Date

Carrier name FedEx 1day

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shippping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	1.3. °C
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH<2 acceptable upon receipt?	Yes ☑	No ☐	NA ☐ LOT # 8086
	Adjusted? NO		Checked by
Water - ph>9 (S) or ph>12 (CN) acceptable upon receipt?	Yes ☐	No ☐	NA ☑ LOT #
	Adjusted?		Checked by

Any No response must be detailed in the comments section below.

Client contacted _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding: _____

Comments: _____

Corrective Action _____

Page 1 of 1

DHL Analytical, Inc.

Date: *23-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU009(0-2)-A
Project:	Laredo SGR	**Lab ID:**	1607337-01
Project No:	04285081.0000.00044	**Collection Date:**	07/28/16 09:39 AM
Lab Order:	1607337	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **CVD**
Lead	50.6	0.0952	0.286	0.143		mg/Kg-dry	5	08/11/16 01:46 AM
IS: Bismuth	65.0	0	30-120	0		%REC	5	08/11/16 01:46 AM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0674	0.0497	0.0994	0.0746	J	mg/Kg-dry	10	08/09/16 09:45 PM
Acenaphthylene	0.0746	0.0497	0.0994	0.0746	U	mg/Kg-dry	10	08/09/16 09:45 PM
Anthracene	0.167	0.0497	0.0994	0.0746		mg/Kg-dry	10	08/09/16 09:45 PM
Benzo[a]anthracene	1.39	0.0497	0.0994	0.0746		mg/Kg-dry	10	08/09/16 09:45 PM
Benzo[a]pyrene	1.62	0.0497	0.0994	0.0746		mg/Kg-dry	10	08/09/16 09:45 PM
Benzo[b]fluoranthene	1.58	0.0497	0.0994	0.0746		mg/Kg-dry	10	08/09/16 09:45 PM
Benzo[e]pyrene	1.21	0.0497	0.0994	0.0746		mg/Kg-dry	10	08/09/16 09:45 PM
Benzo[g,h,i]perylene	1.15	0.0497	0.0994	0.0746		mg/Kg-dry	10	08/09/16 09:45 PM
Benzo[j]fluoranthene	0.796	0.0497	0.0994	0.0746	N	mg/Kg-dry	10	08/09/16 09:45 PM
Benzo[k]fluoranthene	0.775	0.0497	0.0994	0.0746		mg/Kg-dry	10	08/09/16 09:45 PM
Chrysene	1.74	0.0497	0.0994	0.0746		mg/Kg-dry	10	08/09/16 09:45 PM
Dibenz[a,h]anthracene	0.240	0.0497	0.0994	0.0746		mg/Kg-dry	10	08/09/16 09:45 PM
Fluoranthene	2.43	0.0497	0.0994	0.0746		mg/Kg-dry	10	08/09/16 09:45 PM
Fluorene	0.0746	0.0497	0.0994	0.0746	U	mg/Kg-dry	10	08/09/16 09:45 PM
Indeno[1,2,3-cd]pyrene	0.967	0.0497	0.0994	0.0746		mg/Kg-dry	10	08/09/16 09:45 PM
Phenanthrene	1.10	0.0497	0.0994	0.0746		mg/Kg-dry	10	08/09/16 09:45 PM
Pyrene	2.08	0.0497	0.0994	0.0746		mg/Kg-dry	10	08/09/16 09:45 PM
IS: Acenaphthene-d10	139	0	50-200	0		%REC	10	08/09/16 09:45 PM
IS: Chrysene-d12	97.7	0	50-200	0		%REC	10	08/09/16 09:45 PM
IS: Naphthalene-d8	119	0	50-200	0		%REC	10	08/09/16 09:45 PM
IS: Perylene-d12	106	0	50-200	0		%REC	10	08/09/16 09:45 PM
IS: Phenanthrene-d10	95.4	0	50-200	0		%REC	10	08/09/16 09:45 PM
Surr: 2-Fluorobiphenyl	80.1	0	46-115	0		%REC	10	08/09/16 09:45 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU009(0-2)-A
Project:	Laredo SGR	**Lab ID:**	1607337-01
Project No:	04285081.0000.00044	**Collection Date:**	07/28/16 09:39 AM
Lab Order:	1607337	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	76.8	0	58-133	0		%REC	10	08/09/16 09:45 PM

Qualifiers:	*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
	C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
	E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
	MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
	RL	Reporting Limit	S	Spike Recovery outside control limits
	N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *23-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU009(2-4)-A
Project:	Laredo SGR	**Lab ID:**	1607337-02
Project No:	04285081.0000.00044	**Collection Date:**	07/28/16 09:40 AM
Lab Order:	1607337	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **CVD**
Lead	6.88	0.0980	0.294	0.147		mg/Kg-dry	5	08/11/16 02:34 AM
IS: Bismuth	57.9	0	30-120	0		%REC	5	08/11/16 02:34 AM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0737	0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/09/16 10:25 PM
Acenaphthylene	0.0737	0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/09/16 10:25 PM
Anthracene	0.0737	0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/09/16 10:25 PM
Benzo[a]anthracene	0.0737	0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/09/16 10:25 PM
Benzo[a]pyrene	0.0737	0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/09/16 10:25 PM
Benzo[b]fluoranthene	0.0737	0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/09/16 10:25 PM
Benzo[e]pyrene	0.0737	0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/09/16 10:25 PM
Benzo[g,h,i]perylene	0.0737	0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/09/16 10:25 PM
Benzo[j]fluoranthene	0.0737	0.0492	0.0983	0.0737	NU	mg/Kg-dry	10	08/09/16 10:25 PM
Benzo[k]fluoranthene	0.0737	0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/09/16 10:25 PM
Chrysene	0.0737	0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/09/16 10:25 PM
Dibenz[a,h]anthracene	0.0737	0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/09/16 10:25 PM
Fluoranthene	0.0737	0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/09/16 10:25 PM
Fluorene	0.0737	0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/09/16 10:25 PM
Indeno[1,2,3-cd]pyrene	0.0737	0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/09/16 10:25 PM
Phenanthrene	0.0737	0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/09/16 10:25 PM
Pyrene	0.0737	0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/09/16 10:25 PM
IS: Acenaphthene-d10	141	0	50-200	0		%REC	10	08/09/16 10:25 PM
IS: Chrysene-d12	97.2	0	50-200	0		%REC	10	08/09/16 10:25 PM
IS: Naphthalene-d8	119	0	50-200	0		%REC	10	08/09/16 10:25 PM
IS: Perylene-d12	106	0	50-200	0		%REC	10	08/09/16 10:25 PM
IS: Phenanthrene-d10	95.5	0	50-200	0		%REC	10	08/09/16 10:25 PM
Surr: 2-Fluorobiphenyl	79.5	0	46-115	0		%REC	10	08/09/16 10:25 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU009(2-4)-A
Project:	Laredo SGR	**Lab ID:**	1607337-02
Project No:	04285081.0000.00044	**Collection Date:**	07/28/16 09:40 AM
Lab Order:	1607337	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	73.6	0	58-133	0		%REC	10	08/09/16 10:25 PM

Qualifiers:	*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
	C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
	E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
	MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
	RL	Reporting Limit	S	Spike Recovery outside control limits
	N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *23-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU009(4-6)-A
Project:	Laredo SGR	**Lab ID:**	1607337-03
Project No:	04285081.0000.00044	**Collection Date:**	07/28/16 09:41 AM
Lab Order:	1607337	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **CVD**
Lead	5.21	0.0926	0.278	0.139		mg/Kg-dry	5	08/11/16 02:40 AM
IS: Bismuth	61.6	0	30-120	0		%REC	5	08/11/16 02:40 AM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	08/09/16 11:05 PM
Acenaphthylene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	08/09/16 11:05 PM
Anthracene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	08/09/16 11:05 PM
Benzo[a]anthracene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	08/09/16 11:05 PM
Benzo[a]pyrene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	08/09/16 11:05 PM
Benzo[b]fluoranthene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	08/09/16 11:05 PM
Benzo[e]pyrene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	08/09/16 11:05 PM
Benzo[g,h,i]perylene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	08/09/16 11:05 PM
Benzo[j]fluoranthene	0.0749	0.0499	0.0998	0.0749	NU	mg/Kg-dry	10	08/09/16 11:05 PM
Benzo[k]fluoranthene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	08/09/16 11:05 PM
Chrysene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	08/09/16 11:05 PM
Dibenz[a,h]anthracene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	08/09/16 11:05 PM
Fluoranthene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	08/09/16 11:05 PM
Fluorene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	08/09/16 11:05 PM
Indeno[1,2,3-cd]pyrene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	08/09/16 11:05 PM
Phenanthrene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	08/09/16 11:05 PM
Pyrene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	08/09/16 11:05 PM
IS: Acenaphthene-d10	141	0	50-200	0		%REC	10	08/09/16 11:05 PM
IS: Chrysene-d12	99.8	0	50-200	0		%REC	10	08/09/16 11:05 PM
IS: Naphthalene-d8	123	0	50-200	0		%REC	10	08/09/16 11:05 PM
IS: Perylene-d12	110	0	50-200	0		%REC	10	08/09/16 11:05 PM
IS: Phenanthrene-d10	96.9	0	50-200	0		%REC	10	08/09/16 11:05 PM
Surr: 2-Fluorobiphenyl	75.2	0	46-115	0		%REC	10	08/09/16 11:05 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU009(4-6)-A
Project:	Laredo SGR	**Lab ID:**	1607337-03
Project No:	04285081.0000.00044	**Collection Date:**	07/28/16 09:41 AM
Lab Order:	1607337	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	74.9	0	58-133	0		%REC	10	08/09/16 11:05 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU009(6-8)-A
Project:	Laredo SGR	**Lab ID:**	1607337-04
Project No:	04285081.0000.00044	**Collection Date:**	07/28/16 09:42 AM
Lab Order:	1607337	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **CVD**
Lead	5.95	0.0980	0.294	0.147		mg/Kg-dry	5	08/11/16 02:46 AM
IS: Bismuth	61.4	0	30-120	0		%REC	5	08/11/16 02:46 AM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	08/09/16 11:45 PM
Acenaphthylene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	08/09/16 11:45 PM
Anthracene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	08/09/16 11:45 PM
Benzo[a]anthracene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	08/09/16 11:45 PM
Benzo[a]pyrene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	08/09/16 11:45 PM
Benzo[b]fluoranthene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	08/09/16 11:45 PM
Benzo[e]pyrene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	08/09/16 11:45 PM
Benzo[g,h,i]perylene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	08/09/16 11:45 PM
Benzo[j]fluoranthene	0.0742	0.0495	0.0989	0.0742	NU	mg/Kg-dry	10	08/09/16 11:45 PM
Benzo[k]fluoranthene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	08/09/16 11:45 PM
Chrysene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	08/09/16 11:45 PM
Dibenz[a,h]anthracene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	08/09/16 11:45 PM
Fluoranthene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	08/09/16 11:45 PM
Fluorene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	08/09/16 11:45 PM
Indeno[1,2,3-cd]pyrene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	08/09/16 11:45 PM
Phenanthrene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	08/09/16 11:45 PM
Pyrene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	08/09/16 11:45 PM
IS: Acenaphthene-d10	144	0	50-200	0		%REC	10	08/09/16 11:45 PM
IS: Chrysene-d12	104	0	50-200	0		%REC	10	08/09/16 11:45 PM
IS: Naphthalene-d8	126	0	50-200	0		%REC	10	08/09/16 11:45 PM
IS: Perylene-d12	113	0	50-200	0		%REC	10	08/09/16 11:45 PM
IS: Phenanthrene-d10	100	0	50-200	0		%REC	10	08/09/16 11:45 PM
Surr: 2-Fluorobiphenyl	74.1	0	46-115	0		%REC	10	08/09/16 11:45 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU009(6-8)-A
Project:	Laredo SGR	**Lab ID:**	1607337-04
Project No:	04285081.0000.00044	**Collection Date:**	07/28/16 09:42 AM
Lab Order:	1607337	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	73.3	0	58-133	0		%REC	10	08/09/16 11:45 PM

Qualifiers:	*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
	C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
	E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
	MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
	RL	Reporting Limit	S	Spike Recovery outside control limits
	N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *23-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU009(0-2)-B
Project:	Laredo SGR	**Lab ID:**	1607337-05
Project No:	04285081.0000.00044	**Collection Date:**	07/28/16 09:44 AM
Lab Order:	1607337	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **CVD**
Lead	11.7	0.0962	0.288	0.144		mg/Kg-dry	5	08/11/16 02:52 AM
IS: Bismuth	56.3	0	30-120	0		%REC	5	08/11/16 02:52 AM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0740	0.0493	0.0986	0.0740	U	mg/Kg-dry	10	08/10/16 12:24 AM
Acenaphthylene	0.0740	0.0493	0.0986	0.0740	U	mg/Kg-dry	10	08/10/16 12:24 AM
Anthracene	0.0528	0.0493	0.0986	0.0740	J	mg/Kg-dry	10	08/10/16 12:24 AM
Benzo[a]anthracene	0.520	0.0493	0.0986	0.0740		mg/Kg-dry	10	08/10/16 12:24 AM
Benzo[a]pyrene	0.636	0.0493	0.0986	0.0740		mg/Kg-dry	10	08/10/16 12:24 AM
Benzo[b]fluoranthene	0.608	0.0493	0.0986	0.0740		mg/Kg-dry	10	08/10/16 12:24 AM
Benzo[e]pyrene	0.487	0.0493	0.0986	0.0740		mg/Kg-dry	10	08/10/16 12:24 AM
Benzo[g,h,i]perylene	0.503	0.0493	0.0986	0.0740		mg/Kg-dry	10	08/10/16 12:24 AM
Benzo[j]fluoranthene	0.318	0.0493	0.0986	0.0740	N	mg/Kg-dry	10	08/10/16 12:24 AM
Benzo[k]fluoranthene	0.307	0.0493	0.0986	0.0740		mg/Kg-dry	10	08/10/16 12:24 AM
Chrysene	0.660	0.0493	0.0986	0.0740		mg/Kg-dry	10	08/10/16 12:24 AM
Dibenz[a,h]anthracene	0.0942	0.0493	0.0986	0.0740	J	mg/Kg-dry	10	08/10/16 12:24 AM
Fluoranthene	0.970	0.0493	0.0986	0.0740		mg/Kg-dry	10	08/10/16 12:24 AM
Fluorene	0.0740	0.0493	0.0986	0.0740	U	mg/Kg-dry	10	08/10/16 12:24 AM
Indeno[1,2,3-cd]pyrene	0.413	0.0493	0.0986	0.0740		mg/Kg-dry	10	08/10/16 12:24 AM
Phenanthrene	0.399	0.0493	0.0986	0.0740		mg/Kg-dry	10	08/10/16 12:24 AM
Pyrene	0.832	0.0493	0.0986	0.0740		mg/Kg-dry	10	08/10/16 12:24 AM
IS: Acenaphthene-d10	147	0	50-200	0		%REC	10	08/10/16 12:24 AM
IS: Chrysene-d12	106	0	50-200	0		%REC	10	08/10/16 12:24 AM
IS: Naphthalene-d8	130	0	50-200	0		%REC	10	08/10/16 12:24 AM
IS: Perylene-d12	115	0	50-200	0		%REC	10	08/10/16 12:24 AM
IS: Phenanthrene-d10	99.7	0	50-200	0		%REC	10	08/10/16 12:24 AM
Surr: 2-Fluorobiphenyl	75.2	0	46-115	0		%REC	10	08/10/16 12:24 AM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU009(0-2)-B
Project:	Laredo SGR	**Lab ID:**	1607337-05
Project No:	04285081.0000.00044	**Collection Date:**	07/28/16 09:44 AM
Lab Order:	1607337	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	77.8	0	58-133	0		%REC	10	08/10/16 12:24 AM

Qualifiers:	*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
	C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
	E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
	MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
	RL	Reporting Limit	S	Spike Recovery outside control limits
	N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *23-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU009(2-4)-B
Project:	Laredo SGR	**Lab ID:**	1607337-06
Project No:	04285081.0000.00044	**Collection Date:**	07/28/16 09:45 AM
Lab Order:	1607337	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **CVD**
Lead	6.06	0.0962	0.288	0.144		mg/Kg-dry	5	08/11/16 02:58 AM
IS: Bismuth	55.5	0	30-120	0		%REC	5	08/11/16 02:58 AM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/10/16 01:04 AM
Acenaphthylene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/10/16 01:04 AM
Anthracene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/10/16 01:04 AM
Benzo[a]anthracene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/10/16 01:04 AM
Benzo[a]pyrene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/10/16 01:04 AM
Benzo[b]fluoranthene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/10/16 01:04 AM
Benzo[e]pyrene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/10/16 01:04 AM
Benzo[g,h,i]perylene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/10/16 01:04 AM
Benzo[j]fluoranthene	0.0744	0.0496	0.0992	0.0744	NU	mg/Kg-dry	10	08/10/16 01:04 AM
Benzo[k]fluoranthene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/10/16 01:04 AM
Chrysene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/10/16 01:04 AM
Dibenz[a,h]anthracene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/10/16 01:04 AM
Fluoranthene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/10/16 01:04 AM
Fluorene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/10/16 01:04 AM
Indeno[1,2,3-cd]pyrene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/10/16 01:04 AM
Phenanthrene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/10/16 01:04 AM
Pyrene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/10/16 01:04 AM
IS: Acenaphthene-d10	147	0	50-200	0		%REC	10	08/10/16 01:04 AM
IS: Chrysene-d12	102	0	50-200	0		%REC	10	08/10/16 01:04 AM
IS: Naphthalene-d8	127	0	50-200	0		%REC	10	08/10/16 01:04 AM
IS: Perylene-d12	111	0	50-200	0		%REC	10	08/10/16 01:04 AM
IS: Phenanthrene-d10	99.9	0	50-200	0		%REC	10	08/10/16 01:04 AM
Surr: 2-Fluorobiphenyl	77.4	0	46-115	0		%REC	10	08/10/16 01:04 AM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU009(2-4)-B
Project:	Laredo SGR	**Lab ID:**	1607337-06
Project No:	04285081.0000.00044	**Collection Date:**	07/28/16 09:45 AM
Lab Order:	1607337	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	73.8	0	58-133	0		%REC	10	08/10/16 01:04 AM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU009(4-6)-B
Project:	Laredo SGR	**Lab ID:**	1607337-07
Project No:	04285081.0000.00044	**Collection Date:**	07/28/16 09:46 AM
Lab Order:	1607337	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **CVD**
Lead	4.90	0.0952	0.286	0.143		mg/Kg-dry	5	08/11/16 03:10 AM
IS: Bismuth	51.2	0	30-120	0		%REC	5	08/11/16 03:10 AM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	08/10/16 01:43 AM
Acenaphthylene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	08/10/16 01:43 AM
Anthracene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	08/10/16 01:43 AM
Benzo[a]anthracene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	08/10/16 01:43 AM
Benzo[a]pyrene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	08/10/16 01:43 AM
Benzo[b]fluoranthene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	08/10/16 01:43 AM
Benzo[e]pyrene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	08/10/16 01:43 AM
Benzo[g,h,i]perylene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	08/10/16 01:43 AM
Benzo[j]fluoranthene	0.0747	0.0498	0.0996	0.0747	NU	mg/Kg-dry	10	08/10/16 01:43 AM
Benzo[k]fluoranthene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	08/10/16 01:43 AM
Chrysene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	08/10/16 01:43 AM
Dibenz[a,h]anthracene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	08/10/16 01:43 AM
Fluoranthene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	08/10/16 01:43 AM
Fluorene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	08/10/16 01:43 AM
Indeno[1,2,3-cd]pyrene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	08/10/16 01:43 AM
Phenanthrene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	08/10/16 01:43 AM
Pyrene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	08/10/16 01:43 AM
IS: Acenaphthene-d10	143	0	50-200	0		%REC	10	08/10/16 01:43 AM
IS: Chrysene-d12	96.4	0	50-200	0		%REC	10	08/10/16 01:43 AM
IS: Naphthalene-d8	119	0	50-200	0		%REC	10	08/10/16 01:43 AM
IS: Perylene-d12	106	0	50-200	0		%REC	10	08/10/16 01:43 AM
IS: Phenanthrene-d10	94.6	0	50-200	0		%REC	10	08/10/16 01:43 AM
Surr: 2-Fluorobiphenyl	84.9	0	46-115	0		%REC	10	08/10/16 01:43 AM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU009(4-6)-B
Project:	Laredo SGR	**Lab ID:**	1607337-07
Project No:	04285081.0000.00044	**Collection Date:**	07/28/16 09:46 AM
Lab Order:	1607337	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	79.0	0	58-133	0		%REC	10	08/10/16 01:43 AM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *23-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU009(6-8)-B
Project:	Laredo SGR	**Lab ID:**	1607337-08
Project No:	04285081.0000.00044	**Collection Date:**	07/28/16 09:47 AM
Lab Order:	1607337	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **CVD**
Lead	8.21	0.0971	0.291	0.146		mg/Kg-dry	5	08/11/16 03:16 AM
IS: Bismuth	52.6	0	30-120	0		%REC	5	08/11/16 03:16 AM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0736	0.0491	0.0981	0.0736	U	mg/Kg-dry	10	08/10/16 02:23 AM
Acenaphthylene	0.0736	0.0491	0.0981	0.0736	U	mg/Kg-dry	10	08/10/16 02:23 AM
Anthracene	0.0736	0.0491	0.0981	0.0736	U	mg/Kg-dry	10	08/10/16 02:23 AM
Benzo[a]anthracene	0.0736	0.0491	0.0981	0.0736	U	mg/Kg-dry	10	08/10/16 02:23 AM
Benzo[a]pyrene	0.0736	0.0491	0.0981	0.0736	U	mg/Kg-dry	10	08/10/16 02:23 AM
Benzo[b]fluoranthene	0.0736	0.0491	0.0981	0.0736	U	mg/Kg-dry	10	08/10/16 02:23 AM
Benzo[e]pyrene	0.0736	0.0491	0.0981	0.0736	U	mg/Kg-dry	10	08/10/16 02:23 AM
Benzo[g,h,i]perylene	0.0736	0.0491	0.0981	0.0736	U	mg/Kg-dry	10	08/10/16 02:23 AM
Benzo[j]fluoranthene	0.0736	0.0491	0.0981	0.0736	NU	mg/Kg-dry	10	08/10/16 02:23 AM
Benzo[k]fluoranthene	0.0736	0.0491	0.0981	0.0736	U	mg/Kg-dry	10	08/10/16 02:23 AM
Chrysene	0.0736	0.0491	0.0981	0.0736	U	mg/Kg-dry	10	08/10/16 02:23 AM
Dibenz[a,h]anthracene	0.0736	0.0491	0.0981	0.0736	U	mg/Kg-dry	10	08/10/16 02:23 AM
Fluoranthene	0.0736	0.0491	0.0981	0.0736	U	mg/Kg-dry	10	08/10/16 02:23 AM
Fluorene	0.0736	0.0491	0.0981	0.0736	U	mg/Kg-dry	10	08/10/16 02:23 AM
Indeno[1,2,3-cd]pyrene	0.0736	0.0491	0.0981	0.0736	U	mg/Kg-dry	10	08/10/16 02:23 AM
Phenanthrene	0.0736	0.0491	0.0981	0.0736	U	mg/Kg-dry	10	08/10/16 02:23 AM
Pyrene	0.0736	0.0491	0.0981	0.0736	U	mg/Kg-dry	10	08/10/16 02:23 AM
IS: Acenaphthene-d10	144	0	50-200	0		%REC	10	08/10/16 02:23 AM
IS: Chrysene-d12	96.0	0	50-200	0		%REC	10	08/10/16 02:23 AM
IS: Naphthalene-d8	119	0	50-200	0		%REC	10	08/10/16 02:23 AM
IS: Perylene-d12	105	0	50-200	0		%REC	10	08/10/16 02:23 AM
IS: Phenanthrene-d10	94.7	0	50-200	0		%REC	10	08/10/16 02:23 AM
Surr: 2-Fluorobiphenyl	83.5	0	46-115	0		%REC	10	08/10/16 02:23 AM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU009(6-8)-B
Project:	Laredo SGR	**Lab ID:**	1607337-08
Project No:	04285081.0000.00044	**Collection Date:**	07/28/16 09:47 AM
Lab Order:	1607337	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	75.4	0	58-133	0		%REC	10	08/10/16 02:23 AM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *23-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU009(0-2)-C
Project:	Laredo SGR	**Lab ID:**	1607337-09
Project No:	04285081.0000.00044	**Collection Date:**	07/28/16 09:49 AM
Lab Order:	1607337	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **CVD**
Lead	16.3	0.0877	0.263	0.132		mg/Kg-dry	5	08/11/16 03:22 AM
IS: Bismuth	53.3	0	30-120	0		%REC	5	08/11/16 03:22 AM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0738	0.0492	0.0984	0.0738	U	mg/Kg-dry	10	08/10/16 09:15 AM
Acenaphthylene	0.0738	0.0492	0.0984	0.0738	U	mg/Kg-dry	10	08/10/16 09:15 AM
Anthracene	0.0611	0.0492	0.0984	0.0738	J	mg/Kg-dry	10	08/10/16 09:15 AM
Benzo[a]anthracene	0.624	0.0492	0.0984	0.0738		mg/Kg-dry	10	08/10/16 09:15 AM
Benzo[a]pyrene	0.795	0.0492	0.0984	0.0738		mg/Kg-dry	10	08/10/16 09:15 AM
Benzo[b]fluoranthene	0.775	0.0492	0.0984	0.0738		mg/Kg-dry	10	08/10/16 09:15 AM
Benzo[e]pyrene	0.606	0.0492	0.0984	0.0738		mg/Kg-dry	10	08/10/16 09:15 AM
Benzo[g,h,i]perylene	0.606	0.0492	0.0984	0.0738		mg/Kg-dry	10	08/10/16 09:15 AM
Benzo[j]fluoranthene	0.389	0.0492	0.0984	0.0738	N	mg/Kg-dry	10	08/10/16 09:15 AM
Benzo[k]fluoranthene	0.362	0.0492	0.0984	0.0738		mg/Kg-dry	10	08/10/16 09:15 AM
Chrysene	0.780	0.0492	0.0984	0.0738		mg/Kg-dry	10	08/10/16 09:15 AM
Dibenz[a,h]anthracene	0.116	0.0492	0.0984	0.0738		mg/Kg-dry	10	08/10/16 09:15 AM
Fluoranthene	1.07	0.0492	0.0984	0.0738		mg/Kg-dry	10	08/10/16 09:15 AM
Fluorene	0.0738	0.0492	0.0984	0.0738	U	mg/Kg-dry	10	08/10/16 09:15 AM
Indeno[1,2,3-cd]pyrene	0.491	0.0492	0.0984	0.0738		mg/Kg-dry	10	08/10/16 09:15 AM
Phenanthrene	0.381	0.0492	0.0984	0.0738		mg/Kg-dry	10	08/10/16 09:15 AM
Pyrene	0.948	0.0492	0.0984	0.0738		mg/Kg-dry	10	08/10/16 09:15 AM
IS: Acenaphthene-d10	133	0	50-200	0		%REC	10	08/10/16 09:15 AM
IS: Chrysene-d12	103	0	50-200	0		%REC	10	08/10/16 09:15 AM
IS: Naphthalene-d8	121	0	50-200	0		%REC	10	08/10/16 09:15 AM
IS: Perylene-d12	111	0	50-200	0		%REC	10	08/10/16 09:15 AM
IS: Phenanthrene-d10	97.6	0	50-200	0		%REC	10	08/10/16 09:15 AM
Surr: 2-Fluorobiphenyl	75.2	0	46-115	0		%REC	10	08/10/16 09:15 AM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU009(0-2)-C
Project:	Laredo SGR	**Lab ID:**	1607337-09
Project No:	04285081.0000.00044	**Collection Date:**	07/28/16 09:49 AM
Lab Order:	1607337	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	80.4	0	58-133	0		%REC	10	08/10/16 09:15 AM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *23-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU009(2-4)-C
Project:	Laredo SGR	**Lab ID:**	1607337-10
Project No:	04285081.0000.00044	**Collection Date:**	07/28/16 09:50 AM
Lab Order:	1607337	**Matrix:**	SOIL

Analyses	Result		DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID				**SW6020A**					Analyst: **RO**
Lead	6.74		0.0935	0.280	0.140		mg/Kg-dry	5	08/11/16 05:10 PM
IS: Bismuth	99.2		0	30-120	0		%REC	5	08/11/16 05:10 PM
PAHS: GC/MS				**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0749		0.0499	0.0998	0.0749	U	mg/Kg-dry	10	08/10/16 09:55 AM
Acenaphthylene	0.0749		0.0499	0.0998	0.0749	U	mg/Kg-dry	10	08/10/16 09:55 AM
Anthracene	0.0749		0.0499	0.0998	0.0749	U	mg/Kg-dry	10	08/10/16 09:55 AM
Benzo[a]anthracene	0.640	JL	0.0499	0.0998	0.0749		mg/Kg-dry	10	08/10/16 09:55 AM
Benzo[a]pyrene	0.815		0.0499	0.0998	0.0749		mg/Kg-dry	10	08/10/16 09:55 AM
Benzo[b]fluoranthene	0.698		0.0499	0.0998	0.0749		mg/Kg-dry	10	08/10/16 09:55 AM
Benzo[e]pyrene	0.569		0.0499	0.0998	0.0749		mg/Kg-dry	10	08/10/16 09:55 AM
Benzo[g,h,i]perylene	0.548		0.0499	0.0998	0.0749		mg/Kg-dry	10	08/10/16 09:55 AM
Benzo[j]fluoranthene	0.386		0.0499	0.0998	0.0749	N	mg/Kg-dry	10	08/10/16 09:55 AM
Benzo[k]fluoranthene	0.360		0.0499	0.0998	0.0749		mg/Kg-dry	10	08/10/16 09:55 AM
Chrysene	0.762		0.0499	0.0998	0.0749		mg/Kg-dry	10	08/10/16 09:55 AM
Dibenz[a,h]anthracene	0.0992		0.0499	0.0998	0.0749	J	mg/Kg-dry	10	08/10/16 09:55 AM
Fluoranthene	0.783	JL	0.0499	0.0998	0.0749		mg/Kg-dry	10	08/10/16 09:55 AM
Fluorene	0.0749		0.0499	0.0998	0.0749	U	mg/Kg-dry	10	08/10/16 09:55 AM
Indeno[1,2,3-cd]pyrene	0.450	JL	0.0499	0.0998	0.0749		mg/Kg-dry	10	08/10/16 09:55 AM
Phenanthrene	0.218		0.0499	0.0998	0.0749		mg/Kg-dry	10	08/10/16 09:55 AM
Pyrene	0.739	JL	0.0499	0.0998	0.0749		mg/Kg-dry	10	08/10/16 09:55 AM
IS: Acenaphthene-d10	143		0	50-200	0		%REC	10	08/10/16 09:55 AM
IS: Chrysene-d12	99.9		0	50-200	0		%REC	10	08/10/16 09:55 AM
IS: Naphthalene-d8	124		0	50-200	0		%REC	10	08/10/16 09:55 AM
IS: Perylene-d12	110		0	50-200	0		%REC	10	08/10/16 09:55 AM
IS: Phenanthrene-d10	97.7		0	50-200	0		%REC	10	08/10/16 09:55 AM
Surr: 2-Fluorobiphenyl	79.9		0	46-115	0		%REC	10	08/10/16 09:55 AM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU009(2-4)-C
Project:	Laredo SGR	**Lab ID:**	1607337-10
Project No:	04285081.0000.00044	**Collection Date:**	07/28/16 09:50 AM
Lab Order:	1607337	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	77.8	0	58-133	0		%REC	10	08/10/16 09:55 AM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU009(4-6)-C
Project:	Laredo SGR	**Lab ID:**	1607337-11
Project No:	04285081.0000.00044	**Collection Date:**	07/28/16 09:51 AM
Lab Order:	1607337	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **CVD**
Lead	5.24	0.0943	0.283	0.142		mg/Kg-dry	5	08/11/16 03:28 AM
IS: Bismuth	51.9	0	30-120	0		%REC	5	08/11/16 03:28 AM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	08/10/16 10:35 AM
Acenaphthylene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	08/10/16 10:35 AM
Anthracene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	08/10/16 10:35 AM
Benzo[a]anthracene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	08/10/16 10:35 AM
Benzo[a]pyrene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	08/10/16 10:35 AM
Benzo[b]fluoranthene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	08/10/16 10:35 AM
Benzo[e]pyrene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	08/10/16 10:35 AM
Benzo[g,h,i]perylene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	08/10/16 10:35 AM
Benzo[j]fluoranthene	0.0742	0.0495	0.0989	0.0742	NU	mg/Kg-dry	10	08/10/16 10:35 AM
Benzo[k]fluoranthene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	08/10/16 10:35 AM
Chrysene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	08/10/16 10:35 AM
Dibenz[a,h]anthracene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	08/10/16 10:35 AM
Fluoranthene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	08/10/16 10:35 AM
Fluorene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	08/10/16 10:35 AM
Indeno[1,2,3-cd]pyrene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	08/10/16 10:35 AM
Phenanthrene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	08/10/16 10:35 AM
Pyrene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	08/10/16 10:35 AM
IS: Acenaphthene-d10	134	0	50-200	0		%REC	10	08/10/16 10:35 AM
IS: Chrysene-d12	99.1	0	50-200	0		%REC	10	08/10/16 10:35 AM
IS: Naphthalene-d8	120	0	50-200	0		%REC	10	08/10/16 10:35 AM
IS: Perylene-d12	107	0	50-200	0		%REC	10	08/10/16 10:35 AM
IS: Phenanthrene-d10	94.5	0	50-200	0		%REC	10	08/10/16 10:35 AM
Surr: 2-Fluorobiphenyl	82.5	0	46-115	0		%REC	10	08/10/16 10:35 AM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU009(4-6)-C
Project:	Laredo SGR	**Lab ID:**	1607337-11
Project No:	04285081.0000.00044	**Collection Date:**	07/28/16 09:51 AM
Lab Order:	1607337	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	83.6	0	58-133	0		%REC	10	08/10/16 10:35 AM

Qualifiers:	*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
	C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
	E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
	MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
	RL	Reporting Limit	S	Spike Recovery outside control limits
	N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU009(6-8)-C
Project:	Laredo SGR	**Lab ID:**	1607337-12
Project No:	04285081.0000.00044	**Collection Date:**	07/28/16 09:52 AM
Lab Order:	1607337	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **CVD**
Lead	6.21	0.0926	0.278	0.139		mg/Kg-dry	5	08/11/16 03:34 AM
IS: Bismuth	51.8	0	30-120	0		%REC	5	08/11/16 03:34 AM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	08/10/16 11:14 AM
Acenaphthylene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	08/10/16 11:14 AM
Anthracene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	08/10/16 11:14 AM
Benzo[a]anthracene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	08/10/16 11:14 AM
Benzo[a]pyrene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	08/10/16 11:14 AM
Benzo[b]fluoranthene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	08/10/16 11:14 AM
Benzo[e]pyrene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	08/10/16 11:14 AM
Benzo[g,h,i]perylene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	08/10/16 11:14 AM
Benzo[j]fluoranthene	0.0749	0.0499	0.0998	0.0749	NU	mg/Kg-dry	10	08/10/16 11:14 AM
Benzo[k]fluoranthene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	08/10/16 11:14 AM
Chrysene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	08/10/16 11:14 AM
Dibenz[a,h]anthracene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	08/10/16 11:14 AM
Fluoranthene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	08/10/16 11:14 AM
Fluorene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	08/10/16 11:14 AM
Indeno[1,2,3-cd]pyrene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	08/10/16 11:14 AM
Phenanthrene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	08/10/16 11:14 AM
Pyrene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	08/10/16 11:14 AM
IS: Acenaphthene-d10	148	0	50-200	0		%REC	10	08/10/16 11:14 AM
IS: Chrysene-d12	99.2	0	50-200	0		%REC	10	08/10/16 11:14 AM
IS: Naphthalene-d8	122	0	50-200	0		%REC	10	08/10/16 11:14 AM
IS: Perylene-d12	108	0	50-200	0		%REC	10	08/10/16 11:14 AM
IS: Phenanthrene-d10	98.8	0	50-200	0		%REC	10	08/10/16 11:14 AM
Surr: 2-Fluorobiphenyl	81.4	0	46-115	0		%REC	10	08/10/16 11:14 AM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU009(6-8)-C
Project:	Laredo SGR	**Lab ID:**	1607337-12
Project No:	04285081.0000.00044	**Collection Date:**	07/28/16 09:52 AM
Lab Order:	1607337	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	74.1	0	58-133	0		%REC	10	08/10/16 11:14 AM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	EB01(20160728)
Project:	Laredo SGR	**Lab ID:**	1607337-13
Project No:	04285081.0000.00044	**Collection Date:**	07/28/16 10:00 AM
Lab Order:	1607337	**Matrix:**	EQUIP BLANK

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER			**SW6020A**					Analyst: **CVD**
Lead	0.000900	0.000300	0.00100	0.000900	U	mg/L	1	08/10/16 02:28 AM
IS: Bismuth	91.3	0	30-120	0		%REC	1	08/10/16 02:28 AM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Acenaphthene	0.0000791	0.0000494	0.0000989	0.0000791	U	mg/L	1	08/03/16 11:46 PM
Acenaphthylene	0.0000791	0.0000494	0.0000989	0.0000791	U	mg/L	1	08/03/16 11:46 PM
Anthracene	0.0000791	0.0000494	0.0000989	0.0000791	U	mg/L	1	08/03/16 11:46 PM
Benzo[a]anthracene	0.0000791	0.0000494	0.0000989	0.0000791	U	mg/L	1	08/03/16 11:46 PM
Benzo[a]pyrene	0.0000791	0.0000494	0.0000989	0.0000791	U	mg/L	1	08/03/16 11:46 PM
Benzo[b]fluoranthene	0.0000791	0.0000494	0.0000989	0.0000791	U	mg/L	1	08/03/16 11:46 PM
Benzo[e]pyrene	0.0000791	0.0000494	0.0000989	0.0000791	U	mg/L	1	08/03/16 11:46 PM
Benzo[g,h,i]perylene	0.0000791	0.0000494	0.0000989	0.0000791	U	mg/L	1	08/03/16 11:46 PM
Benzo[j]fluoranthene	0.0000791	0.0000494	0.0000989	0.0000791	NU	mg/L	1	08/03/16 11:46 PM
Benzo[k]fluoranthene	0.0000791	0.0000494	0.0000989	0.0000791	U	mg/L	1	08/03/16 11:46 PM
Chrysene	0.0000791	0.0000494	0.0000989	0.0000791	U	mg/L	1	08/03/16 11:46 PM
Dibenz[a,h]anthracene	0.0000791	0.0000494	0.0000989	0.0000791	U	mg/L	1	08/03/16 11:46 PM
Fluoranthene	0.0000791	0.0000494	0.0000989	0.0000791	U	mg/L	1	08/03/16 11:46 PM
Fluorene	0.0000791	0.0000494	0.0000989	0.0000791	U	mg/L	1	08/03/16 11:46 PM
Indeno[1,2,3-cd]pyrene	0.0000791	0.0000494	0.0000989	0.0000791	U	mg/L	1	08/03/16 11:46 PM
Phenanthrene	0.0000791	0.0000494	0.0000989	0.0000791	U	mg/L	1	08/03/16 11:46 PM
Pyrene	0.0000791	0.0000494	0.0000989	0.0000791	U	mg/L	1	08/03/16 11:46 PM
IS: Acenaphthene-d10	98.8	0	50-200	0		%REC	1	08/03/16 11:46 PM
IS: Chrysene-d12	85.8	0	50-200	0		%REC	1	08/03/16 11:46 PM
IS: Naphthalene-d8	92.4	0	50-200	0		%REC	1	08/03/16 11:46 PM
IS: Perylene-d12	87.5	0	50-200	0		%REC	1	08/03/16 11:46 PM
IS: Phenanthrene-d10	99.5	0	50-200	0		%REC	1	08/03/16 11:46 PM
Surr: 2-Fluorobiphenyl	80.3	0	53-106	0		%REC	1	08/03/16 11:46 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	EB01(20160728)
Project:	Laredo SGR	**Lab ID:**	1607337-13
Project No:	04285081.0000.00044	**Collection Date:**	07/28/16 10:00 AM
Lab Order:	1607337	**Matrix:**	EQUIP BLANK

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Surr: 4-Terphenyl-d14	76.0	0	58-132	0		%REC	1	08/03/16 11:46 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU105(0-2)-A
Project:	Laredo SGR	**Lab ID:**	1607337-14
Project No:	04285081.0000.00044	**Collection Date:**	07/28/16 12:30 PM
Lab Order:	1607337	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	41.5	0.0909	0.273	0.136		mg/Kg-dry	5	08/11/16 05:14 PM
IS: Bismuth	102	0	30-120	0		%REC	5	08/11/16 05:14 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	08/10/16 11:54 AM
Acenaphthylene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	08/10/16 11:54 AM
Anthracene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	08/10/16 11:54 AM
Benzo[a]anthracene	0.239	0.0495	0.0989	0.0742		mg/Kg-dry	10	08/10/16 11:54 AM
Benzo[a]pyrene	0.321	0.0495	0.0989	0.0742		mg/Kg-dry	10	08/10/16 11:54 AM
Benzo[b]fluoranthene	0.299	0.0495	0.0989	0.0742		mg/Kg-dry	10	08/10/16 11:54 AM
Benzo[e]pyrene	0.250	0.0495	0.0989	0.0742		mg/Kg-dry	10	08/10/16 11:54 AM
Benzo[g,h,i]perylene	0.263	0.0495	0.0989	0.0742		mg/Kg-dry	10	08/10/16 11:54 AM
Benzo[j]fluoranthene	0.152	0.0495	0.0989	0.0742	N	mg/Kg-dry	10	08/10/16 11:54 AM
Benzo[k]fluoranthene	0.152	0.0495	0.0989	0.0742		mg/Kg-dry	10	08/10/16 11:54 AM
Chrysene	0.305	0.0495	0.0989	0.0742		mg/Kg-dry	10	08/10/16 11:54 AM
Dibenz[a,h]anthracene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	08/10/16 11:54 AM
Fluoranthene	0.393	0.0495	0.0989	0.0742		mg/Kg-dry	10	08/10/16 11:54 AM
Fluorene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	08/10/16 11:54 AM
Indeno[1,2,3-cd]pyrene	0.204	0.0495	0.0989	0.0742		mg/Kg-dry	10	08/10/16 11:54 AM
Phenanthrene	0.132	0.0495	0.0989	0.0742		mg/Kg-dry	10	08/10/16 11:54 AM
Pyrene	0.353	0.0495	0.0989	0.0742		mg/Kg-dry	10	08/10/16 11:54 AM
IS: Acenaphthene-d10	141	0	50-200	0		%REC	10	08/10/16 11:54 AM
IS: Chrysene-d12	97.1	0	50-200	0		%REC	10	08/10/16 11:54 AM
IS: Naphthalene-d8	119	0	50-200	0		%REC	10	08/10/16 11:54 AM
IS: Perylene-d12	105	0	50-200	0		%REC	10	08/10/16 11:54 AM
IS: Phenanthrene-d10	96.2	0	50-200	0		%REC	10	08/10/16 11:54 AM
Surr: 2-Fluorobiphenyl	82.8	0	46-115	0		%REC	10	08/10/16 11:54 AM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU105(0-2)-A
Project:	Laredo SGR	**Lab ID:**	1607337-14
Project No:	04285081.0000.00044	**Collection Date:**	07/28/16 12:30 PM
Lab Order:	1607337	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	76.8	0	58-133	0		%REC	10	08/10/16 11:54 AM

Qualifiers:	*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
	C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
	E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
	MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
	RL	Reporting Limit	S	Spike Recovery outside control limits
	N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *23-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU105(2-4)-A
Project:	Laredo SGR	**Lab ID:**	1607337-15
Project No:	04285081.0000.00044	**Collection Date:**	07/28/16 12:32 PM
Lab Order:	1607337	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	21.1	0.0962	0.288	0.144		mg/Kg-dry	5	08/11/16 05:16 PM
IS: Bismuth	98.7	0	30-120	0		%REC	5	08/11/16 05:16 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0724	0.0483	0.0965	0.0724	U	mg/Kg-dry	10	08/10/16 12:34 PM
Acenaphthylene	0.0724	0.0483	0.0965	0.0724	U	mg/Kg-dry	10	08/10/16 12:34 PM
Anthracene	0.0724	0.0483	0.0965	0.0724	U	mg/Kg-dry	10	08/10/16 12:34 PM
Benzo[a]anthracene	0.0724	0.0483	0.0965	0.0724	U	mg/Kg-dry	10	08/10/16 12:34 PM
Benzo[a]pyrene	0.0724	0.0483	0.0965	0.0724	U	mg/Kg-dry	10	08/10/16 12:34 PM
Benzo[b]fluoranthene	0.0724	0.0483	0.0965	0.0724	U	mg/Kg-dry	10	08/10/16 12:34 PM
Benzo[e]pyrene	0.0724	0.0483	0.0965	0.0724	U	mg/Kg-dry	10	08/10/16 12:34 PM
Benzo[g,h,i]perylene	0.0724	0.0483	0.0965	0.0724	U	mg/Kg-dry	10	08/10/16 12:34 PM
Benzo[j]fluoranthene	0.0724	0.0483	0.0965	0.0724	NU	mg/Kg-dry	10	08/10/16 12:34 PM
Benzo[k]fluoranthene	0.0724	0.0483	0.0965	0.0724	U	mg/Kg-dry	10	08/10/16 12:34 PM
Chrysene	0.0724	0.0483	0.0965	0.0724	U	mg/Kg-dry	10	08/10/16 12:34 PM
Dibenz[a,h]anthracene	0.0724	0.0483	0.0965	0.0724	U	mg/Kg-dry	10	08/10/16 12:34 PM
Fluoranthene	0.0724	0.0483	0.0965	0.0724	U	mg/Kg-dry	10	08/10/16 12:34 PM
Fluorene	0.0724	0.0483	0.0965	0.0724	U	mg/Kg-dry	10	08/10/16 12:34 PM
Indeno[1,2,3-cd]pyrene	0.0724	0.0483	0.0965	0.0724	U	mg/Kg-dry	10	08/10/16 12:34 PM
Phenanthrene	0.0724	0.0483	0.0965	0.0724	U	mg/Kg-dry	10	08/10/16 12:34 PM
Pyrene	0.0724	0.0483	0.0965	0.0724	U	mg/Kg-dry	10	08/10/16 12:34 PM
IS: Acenaphthene-d10	142	0	50-200	0		%REC	10	08/10/16 12:34 PM
IS: Chrysene-d12	99.3	0	50-200	0		%REC	10	08/10/16 12:34 PM
IS: Naphthalene-d8	122	0	50-200	0		%REC	10	08/10/16 12:34 PM
IS: Perylene-d12	108	0	50-200	0		%REC	10	08/10/16 12:34 PM
IS: Phenanthrene-d10	96.5	0	50-200	0		%REC	10	08/10/16 12:34 PM
Surr: 2-Fluorobiphenyl	79.3	0	46-115	0		%REC	10	08/10/16 12:34 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU105(2-4)-A
Project:	Laredo SGR	**Lab ID:**	1607337-15
Project No:	04285081.0000.00044	**Collection Date:**	07/28/16 12:32 PM
Lab Order:	1607337	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	77.1	0	58-133	0		%REC	10	08/10/16 12:34 PM

Qualifiers:	*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
	C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
	E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
	MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
	RL	Reporting Limit	S	Spike Recovery outside control limits
	N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU105(4-6)-A
Project:	Laredo SGR	**Lab ID:**	1607337-16
Project No:	04285081.0000.00044	**Collection Date:**	07/28/16 12:34 PM
Lab Order:	1607337	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	6.31	0.0990	0.297	0.149		mg/Kg-dry	5	08/11/16 05:18 PM
IS: Bismuth	102	0	30-120	0		%REC	5	08/11/16 05:18 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0743	0.0496	0.0991	0.0743	U	mg/Kg-dry	10	08/10/16 01:14 PM
Acenaphthylene	0.0743	0.0496	0.0991	0.0743	U	mg/Kg-dry	10	08/10/16 01:14 PM
Anthracene	0.0743	0.0496	0.0991	0.0743	U	mg/Kg-dry	10	08/10/16 01:14 PM
Benzo[a]anthracene	0.0743	0.0496	0.0991	0.0743	U	mg/Kg-dry	10	08/10/16 01:14 PM
Benzo[a]pyrene	0.0743	0.0496	0.0991	0.0743	U	mg/Kg-dry	10	08/10/16 01:14 PM
Benzo[b]fluoranthene	0.0743	0.0496	0.0991	0.0743	U	mg/Kg-dry	10	08/10/16 01:14 PM
Benzo[e]pyrene	0.0743	0.0496	0.0991	0.0743	U	mg/Kg-dry	10	08/10/16 01:14 PM
Benzo[g,h,i]perylene	0.0743	0.0496	0.0991	0.0743	U	mg/Kg-dry	10	08/10/16 01:14 PM
Benzo[j]fluoranthene	0.0743	0.0496	0.0991	0.0743	NU	mg/Kg-dry	10	08/10/16 01:14 PM
Benzo[k]fluoranthene	0.0743	0.0496	0.0991	0.0743	U	mg/Kg-dry	10	08/10/16 01:14 PM
Chrysene	0.0743	0.0496	0.0991	0.0743	U	mg/Kg-dry	10	08/10/16 01:14 PM
Dibenz[a,h]anthracene	0.0743	0.0496	0.0991	0.0743	U	mg/Kg-dry	10	08/10/16 01:14 PM
Fluoranthene	0.0743	0.0496	0.0991	0.0743	U	mg/Kg-dry	10	08/10/16 01:14 PM
Fluorene	0.0743	0.0496	0.0991	0.0743	U	mg/Kg-dry	10	08/10/16 01:14 PM
Indeno[1,2,3-cd]pyrene	0.0743	0.0496	0.0991	0.0743	U	mg/Kg-dry	10	08/10/16 01:14 PM
Phenanthrene	0.0743	0.0496	0.0991	0.0743	U	mg/Kg-dry	10	08/10/16 01:14 PM
Pyrene	0.0743	0.0496	0.0991	0.0743	U	mg/Kg-dry	10	08/10/16 01:14 PM
IS: Acenaphthene-d10	138	0	50-200	0		%REC	10	08/10/16 01:14 PM
IS: Chrysene-d12	97.7	0	50-200	0		%REC	10	08/10/16 01:14 PM
IS: Naphthalene-d8	117	0	50-200	0		%REC	10	08/10/16 01:14 PM
IS: Perylene-d12	106	0	50-200	0		%REC	10	08/10/16 01:14 PM
IS: Phenanthrene-d10	96.0	0	50-200	0		%REC	10	08/10/16 01:14 PM
Surr: 2-Fluorobiphenyl	81.2	0	46-115	0		%REC	10	08/10/16 01:14 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU105(4-6)-A
Project:	Laredo SGR	**Lab ID:**	1607337-16
Project No:	04285081.0000.00044	**Collection Date:**	07/28/16 12:34 PM
Lab Order:	1607337	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	77.3	0	58-133	0		%REC	10	08/10/16 01:14 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *23-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU105(6-8)-A
Project:	Laredo SGR	**Lab ID:**	1607337-17
Project No:	04285081.0000.00044	**Collection Date:**	07/28/16 12:36 PM
Lab Order:	1607337	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	6.54	0.0962	0.288	0.144		mg/Kg-dry	5	08/11/16 05:20 PM
IS: Bismuth	101	0	30-120	0		%REC	5	08/11/16 05:20 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0730	0.0486	0.0973	0.0730	U	mg/Kg-dry	10	08/10/16 01:54 PM
Acenaphthylene	0.0730	0.0486	0.0973	0.0730	U	mg/Kg-dry	10	08/10/16 01:54 PM
Anthracene	0.0730	0.0486	0.0973	0.0730	U	mg/Kg-dry	10	08/10/16 01:54 PM
Benzo[a]anthracene	0.0730	0.0486	0.0973	0.0730	U	mg/Kg-dry	10	08/10/16 01:54 PM
Benzo[a]pyrene	0.0730	0.0486	0.0973	0.0730	U	mg/Kg-dry	10	08/10/16 01:54 PM
Benzo[b]fluoranthene	0.0730	0.0486	0.0973	0.0730	U	mg/Kg-dry	10	08/10/16 01:54 PM
Benzo[e]pyrene	0.0730	0.0486	0.0973	0.0730	U	mg/Kg-dry	10	08/10/16 01:54 PM
Benzo[g,h,i]perylene	0.0730	0.0486	0.0973	0.0730	U	mg/Kg-dry	10	08/10/16 01:54 PM
Benzo[j]fluoranthene	0.0730	0.0486	0.0973	0.0730	NU	mg/Kg-dry	10	08/10/16 01:54 PM
Benzo[k]fluoranthene	0.0730	0.0486	0.0973	0.0730	U	mg/Kg-dry	10	08/10/16 01:54 PM
Chrysene	0.0730	0.0486	0.0973	0.0730	U	mg/Kg-dry	10	08/10/16 01:54 PM
Dibenz[a,h]anthracene	0.0730	0.0486	0.0973	0.0730	U	mg/Kg-dry	10	08/10/16 01:54 PM
Fluoranthene	0.0730	0.0486	0.0973	0.0730	U	mg/Kg-dry	10	08/10/16 01:54 PM
Fluorene	0.0730	0.0486	0.0973	0.0730	U	mg/Kg-dry	10	08/10/16 01:54 PM
Indeno[1,2,3-cd]pyrene	0.0730	0.0486	0.0973	0.0730	U	mg/Kg-dry	10	08/10/16 01:54 PM
Phenanthrene	0.0730	0.0486	0.0973	0.0730	U	mg/Kg-dry	10	08/10/16 01:54 PM
Pyrene	0.0730	0.0486	0.0973	0.0730	U	mg/Kg-dry	10	08/10/16 01:54 PM
IS: Acenaphthene-d10	142	0	50-200	0		%REC	10	08/10/16 01:54 PM
IS: Chrysene-d12	98.9	0	50-200	0		%REC	10	08/10/16 01:54 PM
IS: Naphthalene-d8	123	0	50-200	0		%REC	10	08/10/16 01:54 PM
IS: Perylene-d12	108	0	50-200	0		%REC	10	08/10/16 01:54 PM
IS: Phenanthrene-d10	95.9	0	50-200	0		%REC	10	08/10/16 01:54 PM
Surr: 2-Fluorobiphenyl	83.2	0	46-115	0		%REC	10	08/10/16 01:54 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU105(6-8)-A
Project:	Laredo SGR	**Lab ID:**	1607337-17
Project No:	04285081.0000.00044	**Collection Date:**	07/28/16 12:36 PM
Lab Order:	1607337	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	81.5	0	58-133	0		%REC	10	08/10/16 01:54 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU105(0-2)-B
Project:	Laredo SGR	**Lab ID:**	1607337-18
Project No:	04285081.0000.00044	**Collection Date:**	07/28/16 12:40 PM
Lab Order:	1607337	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	73.6	0.0971	0.291	0.146		mg/Kg-dry	5	08/11/16 05:22 PM
IS: Bismuth	101	0	30-120	0		%REC	5	08/11/16 05:22 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0737	0.0491	0.0982	0.0737	U	mg/Kg-dry	10	08/10/16 02:34 PM
Acenaphthylene	0.0737	0.0491	0.0982	0.0737	U	mg/Kg-dry	10	08/10/16 02:34 PM
Anthracene	0.0566	0.0491	0.0982	0.0737	J	mg/Kg-dry	10	08/10/16 02:34 PM
Benzo[a]anthracene	0.727	0.0491	0.0982	0.0737		mg/Kg-dry	10	08/10/16 02:34 PM
Benzo[a]pyrene	1.05	0.0491	0.0982	0.0737		mg/Kg-dry	10	08/10/16 02:34 PM
Benzo[b]fluoranthene	0.941	0.0491	0.0982	0.0737		mg/Kg-dry	10	08/10/16 02:34 PM
Benzo[e]pyrene	0.768	0.0491	0.0982	0.0737		mg/Kg-dry	10	08/10/16 02:34 PM
Benzo[g,h,i]perylene	0.836	0.0491	0.0982	0.0737		mg/Kg-dry	10	08/10/16 02:34 PM
Benzo[j]fluoranthene	0.474	0.0491	0.0982	0.0737	N	mg/Kg-dry	10	08/10/16 02:34 PM
Benzo[k]fluoranthene	0.454	0.0491	0.0982	0.0737		mg/Kg-dry	10	08/10/16 02:34 PM
Chrysene	0.913	0.0491	0.0982	0.0737		mg/Kg-dry	10	08/10/16 02:34 PM
Dibenz[a,h]anthracene	0.158	0.0491	0.0982	0.0737		mg/Kg-dry	10	08/10/16 02:34 PM
Fluoranthene	1.04	0.0491	0.0982	0.0737		mg/Kg-dry	10	08/10/16 02:34 PM
Fluorene	0.0737	0.0491	0.0982	0.0737	U	mg/Kg-dry	10	08/10/16 02:34 PM
Indeno[1,2,3-cd]pyrene	0.667	0.0491	0.0982	0.0737		mg/Kg-dry	10	08/10/16 02:34 PM
Phenanthrene	0.325	0.0491	0.0982	0.0737		mg/Kg-dry	10	08/10/16 02:34 PM
Pyrene	0.961	0.0491	0.0982	0.0737		mg/Kg-dry	10	08/10/16 02:34 PM
IS: Acenaphthene-d10	146	0	50-200	0		%REC	10	08/10/16 02:34 PM
IS: Chrysene-d12	96.3	0	50-200	0		%REC	10	08/10/16 02:34 PM
IS: Naphthalene-d8	119	0	50-200	0		%REC	10	08/10/16 02:34 PM
IS: Perylene-d12	105	0	50-200	0		%REC	10	08/10/16 02:34 PM
IS: Phenanthrene-d10	97.7	0	50-200	0		%REC	10	08/10/16 02:34 PM
Surr: 2-Fluorobiphenyl	85.6	0	46-115	0		%REC	10	08/10/16 02:34 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *23-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU105(0-2)-B
Project:	Laredo SGR	**Lab ID:**	1607337-18
Project No:	04285081.0000.00044	**Collection Date:**	07/28/16 12:40 PM
Lab Order:	1607337	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	75.9	0	58-133	0		%REC	10	08/10/16 02:34 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *23-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU105(2-4)-B
Project:	Laredo SGR	**Lab ID:**	1607337-19
Project No:	04285081.0000.00044	**Collection Date:**	07/28/16 12:42 PM
Lab Order:	1607337	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	8.85	0.0971	0.291	0.146		mg/Kg-dry	5	08/11/16 05:24 PM
IS: Bismuth	99.0	0	30-120	0		%REC	5	08/11/16 05:24 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	08/10/16 03:14 PM
Acenaphthylene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	08/10/16 03:14 PM
Anthracene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	08/10/16 03:14 PM
Benzo[a]anthracene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	08/10/16 03:14 PM
Benzo[a]pyrene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	08/10/16 03:14 PM
Benzo[b]fluoranthene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	08/10/16 03:14 PM
Benzo[e]pyrene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	08/10/16 03:14 PM
Benzo[g,h,i]perylene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	08/10/16 03:14 PM
Benzo[j]fluoranthene	0.0742	0.0495	0.0989	0.0742	NU	mg/Kg-dry	10	08/10/16 03:14 PM
Benzo[k]fluoranthene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	08/10/16 03:14 PM
Chrysene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	08/10/16 03:14 PM
Dibenz[a,h]anthracene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	08/10/16 03:14 PM
Fluoranthene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	08/10/16 03:14 PM
Fluorene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	08/10/16 03:14 PM
Indeno[1,2,3-cd]pyrene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	08/10/16 03:14 PM
Phenanthrene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	08/10/16 03:14 PM
Pyrene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	08/10/16 03:14 PM
IS: Acenaphthene-d10	141	0	50-200	0		%REC	10	08/10/16 03:14 PM
IS: Chrysene-d12	102	0	50-200	0		%REC	10	08/10/16 03:14 PM
IS: Naphthalene-d8	121	0	50-200	0		%REC	10	08/10/16 03:14 PM
IS: Perylene-d12	109	0	50-200	0		%REC	10	08/10/16 03:14 PM
IS: Phenanthrene-d10	97.3	0	50-200	0		%REC	10	08/10/16 03:14 PM
Surr: 2-Fluorobiphenyl	80.4	0	46-115	0		%REC	10	08/10/16 03:14 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU105(2-4)-B
Project:	Laredo SGR	**Lab ID:**	1607337-19
Project No:	04285081.0000.00044	**Collection Date:**	07/28/16 12:42 PM
Lab Order:	1607337	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	77.9	0	58-133	0		%REC	10	08/10/16 03:14 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *23-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU105(4-6)-B
Project:	Laredo SGR	**Lab ID:**	1607337-20
Project No:	04285081.0000.00044	**Collection Date:**	07/28/16 12:44 PM
Lab Order:	1607337	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	6.54	0.0935	0.280	0.140		mg/Kg-dry	5	08/11/16 05:26 PM
IS: Bismuth	101	0	30-120	0		%REC	5	08/11/16 05:26 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0710	0.0473	0.0947	0.0710	U	mg/Kg-dry	10	08/10/16 03:55 PM
Acenaphthylene	0.0710	0.0473	0.0947	0.0710	U	mg/Kg-dry	10	08/10/16 03:55 PM
Anthracene	0.0710	0.0473	0.0947	0.0710	U	mg/Kg-dry	10	08/10/16 03:55 PM
Benzo[a]anthracene	0.0710	0.0473	0.0947	0.0710	U	mg/Kg-dry	10	08/10/16 03:55 PM
Benzo[a]pyrene	0.0710	0.0473	0.0947	0.0710	U	mg/Kg-dry	10	08/10/16 03:55 PM
Benzo[b]fluoranthene	0.0710	0.0473	0.0947	0.0710	U	mg/Kg-dry	10	08/10/16 03:55 PM
Benzo[e]pyrene	0.0710	0.0473	0.0947	0.0710	U	mg/Kg-dry	10	08/10/16 03:55 PM
Benzo[g,h,i]perylene	0.0710	0.0473	0.0947	0.0710	U	mg/Kg-dry	10	08/10/16 03:55 PM
Benzo[j]fluoranthene	0.0710	0.0473	0.0947	0.0710	NU	mg/Kg-dry	10	08/10/16 03:55 PM
Benzo[k]fluoranthene	0.0710	0.0473	0.0947	0.0710	U	mg/Kg-dry	10	08/10/16 03:55 PM
Chrysene	0.0710	0.0473	0.0947	0.0710	U	mg/Kg-dry	10	08/10/16 03:55 PM
Dibenz[a,h]anthracene	0.0710	0.0473	0.0947	0.0710	U	mg/Kg-dry	10	08/10/16 03:55 PM
Fluoranthene	0.0710	0.0473	0.0947	0.0710	U	mg/Kg-dry	10	08/10/16 03:55 PM
Fluorene	0.0710	0.0473	0.0947	0.0710	U	mg/Kg-dry	10	08/10/16 03:55 PM
Indeno[1,2,3-cd]pyrene	0.0710	0.0473	0.0947	0.0710	U	mg/Kg-dry	10	08/10/16 03:55 PM
Phenanthrene	0.0710	0.0473	0.0947	0.0710	U	mg/Kg-dry	10	08/10/16 03:55 PM
Pyrene	0.0710	0.0473	0.0947	0.0710	U	mg/Kg-dry	10	08/10/16 03:55 PM
IS: Acenaphthene-d10	142	0	50-200	0		%REC	10	08/10/16 03:55 PM
IS: Chrysene-d12	103	0	50-200	0		%REC	10	08/10/16 03:55 PM
IS: Naphthalene-d8	123	0	50-200	0		%REC	10	08/10/16 03:55 PM
IS: Perylene-d12	113	0	50-200	0		%REC	10	08/10/16 03:55 PM
IS: Phenanthrene-d10	99.1	0	50-200	0		%REC	10	08/10/16 03:55 PM
Surr: 2-Fluorobiphenyl	78.4	0	46-115	0		%REC	10	08/10/16 03:55 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU105(4-6)-B
Project:	Laredo SGR	**Lab ID:**	1607337-20
Project No:	04285081.0000.00044	**Collection Date:**	07/28/16 12:44 PM
Lab Order:	1607337	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	77.4	0	58-133	0		%REC	10	08/10/16 03:55 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *23-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU105(6-8)-B
Project:	Laredo SGR	**Lab ID:**	1607337-21
Project No:	04285081.0000.00044	**Collection Date:**	07/28/16 12:46 PM
Lab Order:	1607337	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	6.29	0.0971	0.291	0.146		mg/Kg-dry	5	08/11/16 05:28 PM
IS: Bismuth	101	0	30-120	0		%REC	5	08/11/16 05:28 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0729	0.0486	0.0972	0.0729	U	mg/Kg-dry	10	08/10/16 04:35 PM
Acenaphthylene	0.0729	0.0486	0.0972	0.0729	U	mg/Kg-dry	10	08/10/16 04:35 PM
Anthracene	0.0729	0.0486	0.0972	0.0729	U	mg/Kg-dry	10	08/10/16 04:35 PM
Benzo[a]anthracene	0.0729	0.0486	0.0972	0.0729	U	mg/Kg-dry	10	08/10/16 04:35 PM
Benzo[a]pyrene	0.0729	0.0486	0.0972	0.0729	U	mg/Kg-dry	10	08/10/16 04:35 PM
Benzo[b]fluoranthene	0.0729	0.0486	0.0972	0.0729	U	mg/Kg-dry	10	08/10/16 04:35 PM
Benzo[e]pyrene	0.0729	0.0486	0.0972	0.0729	U	mg/Kg-dry	10	08/10/16 04:35 PM
Benzo[g,h,i]perylene	0.0729	0.0486	0.0972	0.0729	U	mg/Kg-dry	10	08/10/16 04:35 PM
Benzo[j]fluoranthene	0.0729	0.0486	0.0972	0.0729	NU	mg/Kg-dry	10	08/10/16 04:35 PM
Benzo[k]fluoranthene	0.0729	0.0486	0.0972	0.0729	U	mg/Kg-dry	10	08/10/16 04:35 PM
Chrysene	0.0729	0.0486	0.0972	0.0729	U	mg/Kg-dry	10	08/10/16 04:35 PM
Dibenz[a,h]anthracene	0.0729	0.0486	0.0972	0.0729	U	mg/Kg-dry	10	08/10/16 04:35 PM
Fluoranthene	0.0729	0.0486	0.0972	0.0729	U	mg/Kg-dry	10	08/10/16 04:35 PM
Fluorene	0.0729	0.0486	0.0972	0.0729	U	mg/Kg-dry	10	08/10/16 04:35 PM
Indeno[1,2,3-cd]pyrene	0.0729	0.0486	0.0972	0.0729	U	mg/Kg-dry	10	08/10/16 04:35 PM
Phenanthrene	0.0729	0.0486	0.0972	0.0729	U	mg/Kg-dry	10	08/10/16 04:35 PM
Pyrene	0.0729	0.0486	0.0972	0.0729	U	mg/Kg-dry	10	08/10/16 04:35 PM
IS: Acenaphthene-d10	143	0	50-200	0		%REC	10	08/10/16 04:35 PM
IS: Chrysene-d12	97.2	0	50-200	0		%REC	10	08/10/16 04:35 PM
IS: Naphthalene-d8	120	0	50-200	0		%REC	10	08/10/16 04:35 PM
IS: Perylene-d12	107	0	50-200	0		%REC	10	08/10/16 04:35 PM
IS: Phenanthrene-d10	96.7	0	50-200	0		%REC	10	08/10/16 04:35 PM
Surr: 2-Fluorobiphenyl	77.6	0	46-115	0		%REC	10	08/10/16 04:35 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU105(6-8)-B
Project:	Laredo SGR	**Lab ID:**	1607337-21
Project No:	04285081.0000.00044	**Collection Date:**	07/28/16 12:46 PM
Lab Order:	1607337	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	73.4	0	58-133	0		%REC	10	08/10/16 04:35 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *23-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU105(0-2)-C
Project:	Laredo SGR	**Lab ID:**	1607337-22
Project No:	04285081.0000.00044	**Collection Date:**	07/28/16 12:50 PM
Lab Order:	1607337	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	64.9	0.0971	0.291	0.146		mg/Kg-dry	5	08/11/16 05:30 PM
IS: Bismuth	102	0	30-120	0		%REC	5	08/11/16 05:30 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0743	0.0495	0.0990	0.0743	U	mg/Kg-dry	10	08/10/16 07:14 PM
Acenaphthylene	0.0743	0.0495	0.0990	0.0743	U	mg/Kg-dry	10	08/10/16 07:14 PM
Anthracene	0.0913	0.0495	0.0990	0.0743	J	mg/Kg-dry	10	08/10/16 07:14 PM
Benzo[a]anthracene	0.782	0.0495	0.0990	0.0743		mg/Kg-dry	10	08/10/16 07:14 PM
Benzo[a]pyrene	0.954	0.0495	0.0990	0.0743		mg/Kg-dry	10	08/10/16 07:14 PM
Benzo[b]fluoranthene	0.887	0.0495	0.0990	0.0743		mg/Kg-dry	10	08/10/16 07:14 PM
Benzo[e]pyrene	0.714	0.0495	0.0990	0.0743		mg/Kg-dry	10	08/10/16 07:14 PM
Benzo[g,h,i]perylene	0.729	0.0495	0.0990	0.0743		mg/Kg-dry	10	08/10/16 07:14 PM
Benzo[j]fluoranthene	0.439	0.0495	0.0990	0.0743	N	mg/Kg-dry	10	08/10/16 07:14 PM
Benzo[k]fluoranthene	0.426	0.0495	0.0990	0.0743		mg/Kg-dry	10	08/10/16 07:14 PM
Chrysene	0.937	0.0495	0.0990	0.0743		mg/Kg-dry	10	08/10/16 07:14 PM
Dibenz[a,h]anthracene	0.136	0.0495	0.0990	0.0743		mg/Kg-dry	10	08/10/16 07:14 PM
Fluoranthene	1.41	0.0495	0.0990	0.0743		mg/Kg-dry	10	08/10/16 07:14 PM
Fluorene	0.0743	0.0495	0.0990	0.0743	U	mg/Kg-dry	10	08/10/16 07:14 PM
Indeno[1,2,3-cd]pyrene	0.581	0.0495	0.0990	0.0743		mg/Kg-dry	10	08/10/16 07:14 PM
Phenanthrene	0.625	0.0495	0.0990	0.0743		mg/Kg-dry	10	08/10/16 07:14 PM
Pyrene	1.22	0.0495	0.0990	0.0743		mg/Kg-dry	10	08/10/16 07:14 PM
IS: Acenaphthene-d10	143	0	50-200	0		%REC	10	08/10/16 07:14 PM
IS: Chrysene-d12	96.5	0	50-200	0		%REC	10	08/10/16 07:14 PM
IS: Naphthalene-d8	120	0	50-200	0		%REC	10	08/10/16 07:14 PM
IS: Perylene-d12	105	0	50-200	0		%REC	10	08/10/16 07:14 PM
IS: Phenanthrene-d10	95.7	0	50-200	0		%REC	10	08/10/16 07:14 PM
Surr: 2-Fluorobiphenyl	80.4	0	46-115	0		%REC	10	08/10/16 07:14 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU105(0-2)-C
Project:	Laredo SGR	**Lab ID:**	1607337-22
Project No:	04285081.0000.00044	**Collection Date:**	07/28/16 12:50 PM
Lab Order:	1607337	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	73.4	0	58-133	0		%REC	10	08/10/16 07:14 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *23-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU105(2-4)-C
Project:	Laredo SGR	**Lab ID:**	1607337-23
Project No:	04285081.0000.00044	**Collection Date:**	07/28/16 12:52 PM
Lab Order:	1607337	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	13.5	0.0893	0.268	0.134		mg/Kg-dry	5	08/11/16 05:46 PM
IS: Bismuth	100	0	30-120	0		%REC	5	08/11/16 05:46 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0728	0.0485	0.0971	0.0728	U	mg/Kg-dry	10	08/10/16 07:54 PM
Acenaphthylene	0.0728	0.0485	0.0971	0.0728	U	mg/Kg-dry	10	08/10/16 07:54 PM
Anthracene	0.0728	0.0485	0.0971	0.0728	U	mg/Kg-dry	10	08/10/16 07:54 PM
Benzo[a]anthracene	0.0728	0.0485	0.0971	0.0728	U	mg/Kg-dry	10	08/10/16 07:54 PM
Benzo[a]pyrene	0.0728	0.0485	0.0971	0.0728	U	mg/Kg-dry	10	08/10/16 07:54 PM
Benzo[b]fluoranthene	0.0728	0.0485	0.0971	0.0728	U	mg/Kg-dry	10	08/10/16 07:54 PM
Benzo[e]pyrene	0.0728	0.0485	0.0971	0.0728	U	mg/Kg-dry	10	08/10/16 07:54 PM
Benzo[g,h,i]perylene	0.0728	0.0485	0.0971	0.0728	U	mg/Kg-dry	10	08/10/16 07:54 PM
Benzo[j]fluoranthene	0.0728	0.0485	0.0971	0.0728	NU	mg/Kg-dry	10	08/10/16 07:54 PM
Benzo[k]fluoranthene	0.0728	0.0485	0.0971	0.0728	U	mg/Kg-dry	10	08/10/16 07:54 PM
Chrysene	0.0728	0.0485	0.0971	0.0728	U	mg/Kg-dry	10	08/10/16 07:54 PM
Dibenz[a,h]anthracene	0.0728	0.0485	0.0971	0.0728	U	mg/Kg-dry	10	08/10/16 07:54 PM
Fluoranthene	0.0728	0.0485	0.0971	0.0728	U	mg/Kg-dry	10	08/10/16 07:54 PM
Fluorene	0.0728	0.0485	0.0971	0.0728	U	mg/Kg-dry	10	08/10/16 07:54 PM
Indeno[1,2,3-cd]pyrene	0.0728	0.0485	0.0971	0.0728	U	mg/Kg-dry	10	08/10/16 07:54 PM
Phenanthrene	0.0728	0.0485	0.0971	0.0728	U	mg/Kg-dry	10	08/10/16 07:54 PM
Pyrene	0.0728	0.0485	0.0971	0.0728	U	mg/Kg-dry	10	08/10/16 07:54 PM
IS: Acenaphthene-d10	140	0	50-200	0		%REC	10	08/10/16 07:54 PM
IS: Chrysene-d12	98.9	0	50-200	0		%REC	10	08/10/16 07:54 PM
IS: Naphthalene-d8	122	0	50-200	0		%REC	10	08/10/16 07:54 PM
IS: Perylene-d12	107	0	50-200	0		%REC	10	08/10/16 07:54 PM
IS: Phenanthrene-d10	96.6	0	50-200	0		%REC	10	08/10/16 07:54 PM
Surr: 2-Fluorobiphenyl	80.9	0	46-115	0		%REC	10	08/10/16 07:54 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU105(2-4)-C
Project:	Laredo SGR	**Lab ID:**	1607337-23
Project No:	04285081.0000.00044	**Collection Date:**	07/28/16 12:52 PM
Lab Order:	1607337	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	78.1	0	58-133	0		%REC	10	08/10/16 07:54 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *23-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU105(4-6)-C
Project:	Laredo SGR	**Lab ID:**	1607337-24
Project No:	04285081.0000.00044	**Collection Date:**	07/28/16 12:54 PM
Lab Order:	1607337	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	6.49	0.0980	0.294	0.147		mg/Kg-dry	5	08/11/16 05:48 PM
IS: Bismuth	100	0	30-120	0		%REC	5	08/11/16 05:48 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	08/10/16 08:34 PM
Acenaphthylene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	08/10/16 08:34 PM
Anthracene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	08/10/16 08:34 PM
Benzo[a]anthracene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	08/10/16 08:34 PM
Benzo[a]pyrene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	08/10/16 08:34 PM
Benzo[b]fluoranthene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	08/10/16 08:34 PM
Benzo[e]pyrene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	08/10/16 08:34 PM
Benzo[g,h,i]perylene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	08/10/16 08:34 PM
Benzo[j]fluoranthene	0.0749	0.0499	0.0998	0.0749	NU	mg/Kg-dry	10	08/10/16 08:34 PM
Benzo[k]fluoranthene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	08/10/16 08:34 PM
Chrysene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	08/10/16 08:34 PM
Dibenz[a,h]anthracene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	08/10/16 08:34 PM
Fluoranthene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	08/10/16 08:34 PM
Fluorene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	08/10/16 08:34 PM
Indeno[1,2,3-cd]pyrene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	08/10/16 08:34 PM
Phenanthrene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	08/10/16 08:34 PM
Pyrene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	08/10/16 08:34 PM
IS: Acenaphthene-d10	142	0	50-200	0		%REC	10	08/10/16 08:34 PM
IS: Chrysene-d12	97.3	0	50-200	0		%REC	10	08/10/16 08:34 PM
IS: Naphthalene-d8	122	0	50-200	0		%REC	10	08/10/16 08:34 PM
IS: Perylene-d12	106	0	50-200	0		%REC	10	08/10/16 08:34 PM
IS: Phenanthrene-d10	95.1	0	50-200	0		%REC	10	08/10/16 08:34 PM
Surr: 2-Fluorobiphenyl	73.9	0	46-115	0		%REC	10	08/10/16 08:34 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU105(4-6)-C
Project:	Laredo SGR	**Lab ID:**	1607337-24
Project No:	04285081.0000.00044	**Collection Date:**	07/28/16 12:54 PM
Lab Order:	1607337	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	70.4	0	58-133	0		%REC	10	08/10/16 08:34 PM

Qualifiers:	*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
	C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
	E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
	MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
	RL	Reporting Limit	S	Spike Recovery outside control limits
	N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *23-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU105(6-8)-C
Project:	Laredo SGR	**Lab ID:**	1607337-25
Project No:	04285081.0000.00044	**Collection Date:**	07/28/16 12:56 PM
Lab Order:	1607337	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	5.34	0.0980	0.294	0.147		mg/Kg-dry	5	08/11/16 05:50 PM
IS: Bismuth	101	0	30-120	0		%REC	5	08/11/16 05:50 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0732	0.0488	0.0977	0.0732	U	mg/Kg-dry	10	08/10/16 09:14 PM
Acenaphthylene	0.0732	0.0488	0.0977	0.0732	U	mg/Kg-dry	10	08/10/16 09:14 PM
Anthracene	0.0732	0.0488	0.0977	0.0732	U	mg/Kg-dry	10	08/10/16 09:14 PM
Benzo[a]anthracene	0.0732	0.0488	0.0977	0.0732	U	mg/Kg-dry	10	08/10/16 09:14 PM
Benzo[a]pyrene	0.0732	0.0488	0.0977	0.0732	U	mg/Kg-dry	10	08/10/16 09:14 PM
Benzo[b]fluoranthene	0.0732	0.0488	0.0977	0.0732	U	mg/Kg-dry	10	08/10/16 09:14 PM
Benzo[e]pyrene	0.0732	0.0488	0.0977	0.0732	U	mg/Kg-dry	10	08/10/16 09:14 PM
Benzo[g,h,i]perylene	0.0732	0.0488	0.0977	0.0732	U	mg/Kg-dry	10	08/10/16 09:14 PM
Benzo[j]fluoranthene	0.0732	0.0488	0.0977	0.0732	NU	mg/Kg-dry	10	08/10/16 09:14 PM
Benzo[k]fluoranthene	0.0732	0.0488	0.0977	0.0732	U	mg/Kg-dry	10	08/10/16 09:14 PM
Chrysene	0.0732	0.0488	0.0977	0.0732	U	mg/Kg-dry	10	08/10/16 09:14 PM
Dibenz[a,h]anthracene	0.0732	0.0488	0.0977	0.0732	U	mg/Kg-dry	10	08/10/16 09:14 PM
Fluoranthene	0.0732	0.0488	0.0977	0.0732	U	mg/Kg-dry	10	08/10/16 09:14 PM
Fluorene	0.0732	0.0488	0.0977	0.0732	U	mg/Kg-dry	10	08/10/16 09:14 PM
Indeno[1,2,3-cd]pyrene	0.0732	0.0488	0.0977	0.0732	U	mg/Kg-dry	10	08/10/16 09:14 PM
Phenanthrene	0.0732	0.0488	0.0977	0.0732	U	mg/Kg-dry	10	08/10/16 09:14 PM
Pyrene	0.0732	0.0488	0.0977	0.0732	U	mg/Kg-dry	10	08/10/16 09:14 PM
IS: Acenaphthene-d10	145	0	50-200	0		%REC	10	08/10/16 09:14 PM
IS: Chrysene-d12	95.2	0	50-200	0		%REC	10	08/10/16 09:14 PM
IS: Naphthalene-d8	119	0	50-200	0		%REC	10	08/10/16 09:14 PM
IS: Perylene-d12	103	0	50-200	0		%REC	10	08/10/16 09:14 PM
IS: Phenanthrene-d10	94.9	0	50-200	0		%REC	10	08/10/16 09:14 PM
Surr: 2-Fluorobiphenyl	83.4	0	46-115	0		%REC	10	08/10/16 09:14 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU105(6-8)-C
Project:	Laredo SGR	**Lab ID:**	1607337-25
Project No:	04285081.0000.00044	**Collection Date:**	07/28/16 12:56 PM
Lab Order:	1607337	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	75.7	0	58-133	0		%REC	10	08/10/16 09:14 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *31-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	EB02(20160728)
Project:	Laredo SGR	**Lab ID:**	1607337-26
Project No:	04285081.0000.00044	**Collection Date:**	07/28/16 01:00 PM
Lab Order:	1607337	**Matrix:**	EQUIP BLANK

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER			**SW6020A**					Analyst: **CVD**
Lead	0.000900	0.000300	0.00100	0.000900	U	mg/L	1	08/09/16 11:21 PM
IS: Bismuth	86.4	0	30-120	0		%REC	1	08/09/16 11:21 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Acenaphthene	0.0000793	0.0000495	0.0000991	0.0000793	U	mg/L	1	08/04/16 12:26 AM
Acenaphthylene	0.0000793	0.0000495	0.0000991	0.0000793	U	mg/L	1	08/04/16 12:26 AM
Anthracene	0.0000793	0.0000495	0.0000991	0.0000793	U	mg/L	1	08/04/16 12:26 AM
Benzo[a]anthracene	0.0000793	0.0000495	0.0000991	0.0000793	U	mg/L	1	08/04/16 12:26 AM
Benzo[a]pyrene	0.0000793	0.0000495	0.0000991	0.0000793	U	mg/L	1	08/04/16 12:26 AM
Benzo[b]fluoranthene	0.0000793	0.0000495	0.0000991	0.0000793	U	mg/L	1	08/04/16 12:26 AM
Benzo[e]pyrene	0.0000793	0.0000495	0.0000991	0.0000793	U	mg/L	1	08/04/16 12:26 AM
Benzo[g,h,i]perylene	0.0000793	0.0000495	0.0000991	0.0000793	U	mg/L	1	08/04/16 12:26 AM
Benzo[j]fluoranthene	0.0000793	0.0000495	0.0000991	0.0000793	NU	mg/L	1	08/04/16 12:26 AM
Benzo[k]fluoranthene	0.0000793	0.0000495	0.0000991	0.0000793	U	mg/L	1	08/04/16 12:26 AM
Chrysene	0.0000793	0.0000495	0.0000991	0.0000793	U	mg/L	1	08/04/16 12:26 AM
Dibenz[a,h]anthracene	0.0000793	0.0000495	0.0000991	0.0000793	U	mg/L	1	08/04/16 12:26 AM
Fluoranthene	0.0000793	0.0000495	0.0000991	0.0000793	U	mg/L	1	08/04/16 12:26 AM
Fluorene	0.0000793	0.0000495	0.0000991	0.0000793	U	mg/L	1	08/04/16 12:26 AM
Indeno[1,2,3-cd]pyrene	0.0000793	0.0000495	0.0000991	0.0000793	U	mg/L	1	08/04/16 12:26 AM
Phenanthrene	0.0000793	0.0000495	0.0000991	0.0000793	U	mg/L	1	08/04/16 12:26 AM
Pyrene	0.0000793	0.0000495	0.0000991	0.0000793	U	mg/L	1	08/04/16 12:26 AM
IS: Acenaphthene-d10	120	0	50-200	0		%REC	1	08/04/16 12:26 AM
IS: Chrysene-d12	101	0	50-200	0		%REC	1	08/04/16 12:26 AM
IS: Naphthalene-d8	117	0	50-200	0		%REC	1	08/04/16 12:26 AM
IS: Perylene-d12	107	0	50-200	0		%REC	1	08/04/16 12:26 AM
IS: Phenanthrene-d10	112	0	50-200	0		%REC	1	08/04/16 12:26 AM
Surr: 2-Fluorobiphenyl	76.7	0	53-106	0		%REC	1	08/04/16 12:26 AM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	EB02(20160728)
Project:	Laredo SGR	**Lab ID:**	1607337-26
Project No:	04285081.0000.00044	**Collection Date:**	07/28/16 01:00 PM
Lab Order:	1607337	**Matrix:**	EQUIP BLANK

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Surr: 4-Terphenyl-d14	70.6	0	58-132	0		%REC	1	08/04/16 12:26 AM

Qualifiers:	*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
	C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
	E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
	MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
	RL	Reporting Limit	S	Spike Recovery outside control limits
	N	Parameter not NELAC certified		

August 31, 2016

Alex Walter
Arcadis
8725 Rosehill #350
Lenexa, Kansas 66215
TEL: (913) 492-0900
FAX (913) 492-0902

Order No.: 1607337

RE: Laredo SGR

Dear Alex Walter:

DHL Analytical, Inc. received 26 sample(s) on 7/29/2016 for the analyses presented in the following report.

Revision Number 1 for Work Order 1607337: This revision consists of correcting one Sample Identification. Please replace the original Data Report with this revision.

There were no problems with the analyses and all data met requirements of DoD QSM Ver 4.2 except where noted in the Case Narrative. All non-NELAC methods will be identified accordingly in the case narrative and all estimated uncertainties of test results are within method or EPA specifications. If you have any questions regarding these tests results, please feel free to call. Thank you for using DHL Analytical.

Sincerely,

John DuPont
General Manager

This report was performed under the accreditation of the State of Texas & DoD Laboratory Certification Number: T104704211-16-16 & DoD-ELAP #L15-426

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DHL ANALYTICAL
2300 Double Creek Dr. ■ Round Rock, TX 78664
Phone (512) 388-8222 ■ FAX (512) 388-8229
Web: www.dhlanalytical.com
E-Mail: login@dhlanalytical.com

№ 72229

CHAIN-OF-CUSTODY

CLIENT: ARCADIS
ADDRESS: 8725 Rosehill Suite 350 Lenexa, KS 66215
PHONE: 913-492-0900 FAX/E-MAIL: Alex.Walter@arcadis.com
DATA REPORTED TO: Alex Walter
ADDITIONAL REPORT COPIES TO:

DATE: 7-28-16 PAGE 1 OF 2
PO #: 04285081.0000.00044 DHL WORK ORDER #: 1607337
PROJECT LOCATION OR NAME: Laredo SGR
CLENT PROJECT #: 04285081.0000.00044 COLLECTOR: Jordan Beem

Authorize 5% surcharge for TRRP Report? ❑ Yes ❑ No

S=SOIL W=WATER A=AIR L=LIQUID SE=SEDIMENT P=PAINT SL=SLUDGE O=OTHER SO=SOLID

PRESERVATION: HCl, HNO_3, H_2SO_4 ❑ NaOH ❑, ICE, UNPRESERVED

ANALYSES: BTEX ❑ MTBE ❑ [METHOD 8021] TPH 1005 ❑ TPH 1006 ❑ HOLD 1006 ❑ GRO [METHOD 8015] ❑ DRO [METHOD 8105] ❑ VOC 8260 ❑ VOC 624 ❑ VOC 8260/5035 ❑ SVOC 8270 ❑ PAH 8270 ❑ HOLD PAH ❑ SVOC 625 ❑ 8270 PEST ❑ 625 PEST/PCB ❑ 608 PCB ❑ 8270 O-P PEST ❑ 8082 PCB ❑ 8270 PCB ❑ 8321 HERB ❑ T PHOS, AMMONIA ❑ METALS 6020 ❑ METALS 200.8 ❑ DISS. METALS ❑ # 1 Lead RCRA ❑ TX11 ❑ PH ❑ HEX CHROM ❑ ALKALINITY ❑ COD ❑ CHLORIDE ❑ ANIONS ❑ TCLP-SVOC ❑ VOC ❑ PEST ❑ HERB ❑ TCLP-METALS ❑ RCRA 8 ❑ TX-11 ❑ Pb ❑ RCI ❑ FLASHPOINT ❑ DGAS ❑ TDS ❑ TSS ❑ % MOISTURE ❑ CYANIDE ❑

Field Sample I.D.	DHL Lab #	Date	Time	Matrix	Container Type	# of Containers	HCl	HNO_3	H_2SO_4 ❑ NaOH ❑	ICE	UNPRESERVED	ANALYSES	FIELD NOTES
SGR-DU009(0-2)-A	01	7-28-16	0939	S	Bag	1				X		X X X	
SGR-DU009(2-4)-A	02	7-28-16	0940	S	Bag	1				X		X X X	
SGR-DU009(4-6)-A	03	7-28-16	0941	S	Bag	1				X		X X X	
SGR-DU009(6-8)-A	04	7-28-16	0942	S	Bag	1				X		X X X	
~~SGR-DU009(8-10)-A~~		~~7-28-16~~		S	Bag	1				X		X X X	
SGR-DU009(0-2)-B	05	7-28-16	0944	S	Bag	1				X		X X X	
SGR-DU009(2-4)-B	06	7-28-16	0945	S	Bag	1				X		X X X	
SGR-DU009(4-6)-B	07	7-28-16	0946	S	Bag	1				X		X X X	
SGR-DU009(6-8)-B	08	7-28-16	0947	S	Bag	1				X		X X X	
~~SGR-DU009(8-10)-B~~		~~7-28-16~~		S	Bag	1				X		X X X	
SGR-DU009(0-2)-C	09	7-28-16	0949	S	Bag	1				X		X X X	
SGR-DU009(2-4)-C	10	7-28-16	0950	S	Bag	1				X		X X X	
SGR-DU009(4-6)-C	11	7-28-16	0951	S	Bag	1				X		X X X	
SGR-DU009(6-8)-C	12	7-28-16	0952	S	Bag	1				X		X X X	
~~SGR-DU009(8-10)-C~~		~~7-28-16~~		S	Bag	1		~~X~~		X		X X X	

RELINQUISHED BY: (Signature) Jordan Beem DATE/TIME 7-28-16 / 1530 RECEIVED BY: (Signature) Fedex
RELINQUISHED BY: (Signature) Fedex DATE/TIME 7/29/16 9:40 RECEIVED BY: (Signature) Storage
RELINQUISHED BY: (Signature) DATE/TIME RECEIVED BY: (Signature)

❑ DHL DISPOSAL @ $5.00 each ❑ Return

TURN AROUND TIME
RUSH ❑ CALL FIRST
1 DAY ❑ CALL FIRST
2 DAY ❑
NORMAL X
OTHER ❑ _____

LABORATORY USE ONLY:
RECEIVING TEMP: 1.3/0.1/0.5 THERM #: 796
CUSTODY SEALS: ❑ BROKEN X INTACT ❑ NOT USED
CARRIER: ❑ LONE STAR X FEDEX ❑ UPS ❑ OTHER
❑ COURIER DELIVERY
❑ HAND DELIVERED

DHL ANALYTICAL
2300 Double Creek Dr. ■ Round Rock, TX 78664
Phone (512) 388-8222 ■ FAX (512) 388-8229
Web: www.dhlanalytical.com
E-Mail: login@dhlanalytical.com

№ 72230

CHAIN-OF-CUSTODY

CLIENT: ARCADIS.
ADDRESS: 8725 Rosehill Suite 350 Lenexa, KS 66215
PHONE: 913-492-0900 FAX/E-MAIL: Alex.Walter@arcadis.com
DATA REPORTED TO: Alex Walter
ADDITIONAL REPORT COPIES TO:

DATE: 7-28-16 PAGE 2 OF 2
PO #: 04285081.0000.00044 DHL WORK ORDER #: 1160733?
PROJECT LOCATION OR NAME: Laredo SGR
CLENT PROJECT #: 04285081.0000.00044 COLLECTOR: Jordon Beem

Authorize 5% surcharge for TRRP Report? ☐ Yes ☐ No

S=SOIL W=WATER A=AIR L=LIQUID SE=SEDIMENT P=PAINT SL=SLUDGE O=OTHER SO=SOLID

PRESERVATION: HCl | HNO_3 | H_2SO_4 ☐ NaOH ☐ | ICE | UNPRESERVED

ANALYSES: BTEX ☐ MTBE ☐ [METHOD 8021] | TPH 1005 ☐ TPH 1006 ☐ HOLD 1006 ☐ | GRO [METHOD 8015] ☐ DRO [METHOD 8105] ☐ | VOC 8260 ☐ VOC 624 ☐ VOC 8260/5035 ☐ | SVOC 8270 ☐ PAH 8270 ☐ HOLD PAH ☐ SVOC 625 ☐ | 8270 PEST ☐ 625 PEST/PCB ☐ 608 PCB ☐ 608 PCB ☐ | 8270 O-P PEST ☐ 8082 PCB ☐ 8270 PCB ☐ | 8321 HERB ☐ T PHOS, AMMONIA ☐ | METALS 6020 ☐ METALS 200.8 ☐ DISS. METALS ☐ | RCRA ☐ TX11 ☐ | PH ☐ HEX CHROM ☐ ALKALINITY ☐ COD ☐ | CHLORIDE ☐ ANIONS ☐ | TCLP-SVOC ☐ VOC ☐ PEST ☐ HERB ☐ | TCLP-METALS ☐ RCRA 8 ☐ TX-11 ☐ Pb ☐ | RCI ☐ FLASHPOINT ☐ DGAS ☐ | TDS ☐ TSS ☐ % MOISTURE ☐ CYANIDE ☐

Field Sample I.D.	DHL Lab #	Date	Time	Matrix	Container Type	# of Containers	HCl	HNO_3	H_2SO_4 ☐ NaOH ☐	ICE	UNPRESERVED	ANALYSES	FIELD NOTES
EB01(20160728)	13	7-28-16	1000	W	Poly/Glass	2		X		X		X X	
SGR-DU105(0-2)-A	14	7-28-16	1230	S	Bag	1				X		X X	
SGR-DU105(2-4)-A	15	7-28-16	1232	S	Bag	1				X		X X	
SGR-DU105(4-6)-A	16	7-28-16	1234	S	Bag	1				X		X X	
SGR-DU105(6-8)-A	17	7-28-16	1236	S	Bag	1				X		X X	
SGR-DU105(0-2)-B	18	7-28-16	1240	S	Bag	1				X		X X	
SGR-DU105(2-4)-B	19	7-28-16	1242	S	Bag	1				X		X X	
SGR-DU105(4-6)-B	20	7-28-16	1244	S	Bag	1				X		X X	
SGR-DU105(6-8)-B	21	7-28-16	1246	S	Bag	1				X		X X	
SGR-DU105(0-2)-C	22	7-28-16	1250	S	Bag	1				X		X X	
SGR-DU105(2-4)-C	23	7-28-16	1252	S	Bag	1				X		X X	
SGR-DU105(4-6)-C	24	7-28-16	1254	S	Bag	1				X		X X	
SGR-DU105(6-8)-C	25	7-28-16	1256	S	Bag	1				X		X X	
EB02(20160728)	26	7-28-16	1300	W	Poly/Glass	2		X		X		X X	

RELINQUISHED BY: (Signature) Jordon Beem DATE/TIME 7-28-16/1530 RECEIVED BY: (Signature) FedEx
RELINQUISHED BY: (Signature) FedEx DATE/TIME 7/29/16 9:40 RECEIVED BY: (Signature) Storage
RELINQUISHED BY: (Signature) DATE/TIME RECEIVED BY: (Signature)

☐ DHL DISPOSAL @ $5.00 each ☐ Return

4

TURN AROUND TIME
RUSH ☐ CALL FIRST
1 DAY ☐ CALL FIRST
2 DAY ☐
NORMAL ☒
OTHER ☐ _____

LABORATORY USE ONLY:
RECEIVING TEMP: 1.3/0.1/0.5 THERM #: 78
CUSTODY SEALS: ☐ BROKEN ☒ INTACT ☐ NOT USED
CARRIER: ☐ LONE STAR ☒ FEDEX ☐ UPS ☐ OTHER
☐ COURIER DELIVERY
☐ HAND DELIVERED

ORIGIN ID:LRDA (913) 492-0900
PN:042850810000000044
ARCADIS
8725 ROSEHILL
STE 350
LENEXA, KS 66215
UNITED STATES US

SHIP DATE: 28JL
ACTWGT: 83.90 L
CAD: 008994464/
DIMS: 23x14x14 I

BILL THIRD PARTY

1 of 3

TO SAMPLE RECEIVNG
DHL ANALYTICAL
2300 DOUBLE CREEK DR.

ROUND ROCK TX 78664

REF:
INV:
PO:
DEPT:

FedEx
Express

REL#
3785346

TRK# 0201 7836 9220 7058

FRI - 29 JUL 10:30A
PRIORITY OVERNIGHT

MASTER

44 BSMA

78664
TX-US AUS

CUSTODY SEAL
DATE 7-28-16
SIGNATURE

QEC
Quality Environmental Containers
800-255-3950 • 304-255-3900

ORIGIN ID:LRDA (913) 492-0900
PN:042850810000000044
ARCADIS
8725 ROSEHILL
STE 350
LENEXA, KS 66215
UNITED STATES US

SHIP DATE: 28JUL16
ACTWGT: 82.80 LB
CAD: 006994464/SSFE1704
DIMS: 23x14x13 IN

BILL THIRD PARTY

Part # 156297V-435 HI:2 EXP 06/17

TO SAMPLE RECEIVNG
DHL ANALYTICAL
2300 DOUBLE CREEK DR.

ROUND ROCK TX 78664
(512) 388-8222 REF:
INV:
PO: DEPT:

FedEx Express

REL# 3785346

2 of 3
MPS# 0263 7836 9220 7069
Mstr# 7836 9220 7058 0201

FRI - 29 JUL 10:30A
PRIORITY OVERNIGHT

44 BSMA

TX-US

DATE 7-28-16
SIGNATURE Jordan Bean

QEC
Quality Environmental Containers
800-255-3950 • 304-255-3900

ORIGIN ID:LRDA (913) 492-0900
PN:042850810000000044
ARCADIS
8725 ROSEHILL
STE 350
LENEXA, KS 66215
UNITED STATES US

SHIP DATE: 28JUL16
ACTWGT: 67.60 LB
CAD: 006994464/SSFE1704
DIMS: 23x14x13 IN

BILL THIRD PARTY

Part # 156297V-435 HI:2 EXP 06/17

TO SAMPLE RECEIVNG
DHL ANALYTICAL
2300 DOUBLE CREEK DR.

ROUND ROCK TX 78664
(512) 388-8222 REF:
INV:
PO: DEPT:

FedEx Express

REL# 3785346

3 of 3
MPS# 0263 7836 9220 7070
Mstr# 7836 9220 7058 0201

FRI - 29 JUL 10:30A
PRIORITY OVERNIGHT

44 BSMA

78664
TX-US AUS

CUSTODY SEAL
DATE 7-28-16
SIGNATURE Jordan Bean

QEC
Quality Environmental Containers
800-255-3950 • 304-255-3900

DHL Analytical, Inc.

Sample Receipt Checklist

Client Name **Arcadis** Date Received: **7/29/2016**

Work Order Number **1607337** Received by **JT**

Checklist completed by: _____ 7/29/2016 Reviewed by DL 7/29/2016
Signature Date Initials Date

Carrier name FedEx 1day

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shippping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	1.3. °C
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH<2 acceptable upon receipt?	Yes ☑	No ☐	NA ☐ LOT # 8086
	Adjusted? NO		Checked by
Water - ph>9 (S) or ph>12 (CN) acceptable upon receipt?	Yes ☐	No ☐	NA ☑ LOT #
	Adjusted?		Checked by

Any No response must be detailed in the comments section below.

Client contacted _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding: _____

Comments: _____

Corrective Action _____

Page 1 of 1

DHL Analytical, Inc.
Laboratory Review Checklist: Reportable Data

Project Name: Laredo SGR	**Date:** 8/23/2016
Reviewer Name: Angie O'Donnell	**Laboratory Work Order:** 1607337
Prep Batch Number(s): See Prep Dates Report	**Run Batch:** See Analytical Dates Report

#[1]	A[2]	Description	Yes	No	NA[3]	NR[4]	ER#[5]
		Chain-of-Custody (C-O-C)					
R1	OI	**1)** Did samples meet the laboratory's standard conditions of sample acceptability upon receipt?	**X**				**R1-01**
		2) Were all departures from standard conditions described in an exception report?			**X**		
R2	OI	**Sample and Quality Control (QC) Identification**					
		1) Are all field sample ID numbers cross-referenced to the laboratory ID numbers?	**X**				
		2) Are all laboratory ID numbers cross-referenced to the corresponding QC data?	**X**				
R3	OI	**Test Reports**					
		1) Were all samples prepared and analyzed within holding times?	**X**				
		2) Other than those results < MQL, were all other raw values bracketed by calibration standards?	**X**				
		3) Were calculations checked by a peer or supervisor?	**X**				
		4) Were all analyte identifications checked by a peer or supervisor?	**X**				
		5) Were sample detection limits reported for all analytes not detected?	**X**				
		6) Were all results for soil and sediment samples reported on a dry weight basis?	**X**				
		7) Were % moisture (or solids) reported for all soil and sediment samples?	**X**				
		8) Were bulk soils/solids samples for volatile analysis extracted with methanol per EPA Method 5035?			**X**		
		9) If required for the project, TICs reported?			**X**		
R4	O	**Surrogate Recovery Data**					
		1) Were surrogates added prior to extraction?	**X**				
		2) Were surrogate percent recoveries in all samples within the laboratory QC limits?	**X**				
R5	OI	**Test Reports/Summary Forms for Blank Samples**					
		1) Were appropriate type(s) of blanks analyzed?	**X**				
		2) Were blanks analyzed at the appropriate frequency?	**X**				
		3) Where method blanks taken through the entire analytical process, including preparation and, if applicable, cleanup procedures?	**X**				
		4) Were blank concentrations < MQL?	**X**				
R6	OI	**Laboratory Control Samples (LCS):**					
		1) Were all COCs included in the LCS?	**X**				
		2) Was each LCS taken through the entire analytical procedure, including prep and cleanup steps?	**X**				
		3) Were LCSs analyzed at the required frequency?	**X**				
		4) Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits?	**X**				
		5) Does the detectability data document the laboratory's capability to detect the COCs at the MDL used to calculate the SDLs?	**X**				
		6) Was the LCSD RPD within QC limits (if applicable)?	**X**				
R7	OI	**Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Data**					
		1) Were the project/method specified analytes included in the MS and MSD?	**X**				
		2) Were MS/MSD analyzed at the appropriate frequency?	**X**				**R7-02**
		3) Were MS (and MSD, if applicable) %Rs within the laboratory QC limits?		**X**			**R7-03**
		4) Were MS/MSD RPDs within laboratory QC limits?	**X**				
R8	OI	**Analytical Duplicate Data**					
		1) Were appropriate analytical duplicates analyzed for each matrix?			**X**		
		2) Were analytical duplicates analyzed at the appropriate frequency?			**X**		
		3) Were RPDs or relative standard deviations within the laboratory QC limits?			**X**		
R9	OI	**Method Quantitation Limits (MQLs):**					
		1) Are the MQLs for each method analyte included in the laboratory data package?	**X**				
		2) Do the MQLs correspond to the concentration of the lowest non-zero calibration standard?	**X**				
		3) Are unadjusted MQLs and DCSs included in the laboratory data package?	**X**				
R10	OI	**Other Problems/Anomalies**					
		1) Are all known problems/anomalies/special conditions noted in this LRC and ER?	**X**				**R10-01**
		2) Was applicable and available technology used to lower the SDL to minimize the matrix interference affects on the sample results?	**X**				
		3) Is the laboratory NELAC-accredited under the Texas Laboratory Accreditation Program for the analytes, matrices and methods associated with this laboratory data package?	**X**				

1 Items identified by the letter "R" should be included in the laboratory data package submitted to the TCEQ in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.
2 O = organic analyses; I = inorganic analyses (and general chemistry, when applicable).
3 NA = Not applicable.
4 NR = Not Reviewed.
5 ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

DHL Analytical, Inc.
Laboratory Review Checklist (continued): Supporting Data

Project Name: Laredo SGR | **Date:** 8/23/2016

Reviewer Name: Angie O'Donnell | **Laboratory Work Order:** 1607337

#[1]	A[2]	Description	Yes	No	NA[3]	NR[4]	ER#[5]
S1	OI	**Initial Calibration (ICAL)**					
		1) Were response factors and/or relative response factors for each analyte within QC limits?	**X**				
		2) Were percent RSDs or correlation coefficient criteria met?	**X**				
		3) Was the number of standards recommended in the method used for all analytes?	**X**				
		4) Were all points generated between the lowest and highest standard used to calculate the curve?	**X**				
		5) Are ICAL data available for all instruments used?	**X**				
		6) Has the initial calibration curve been verified using an appropriate second source standard?	**X**				
S2	OI	**Initial and Continuing calibration Verification (ICCV and CCV) and Continuing Calibration blank (CCB):**					
		1) Was the CCV analyzed at the method-required frequency?	**X**				
		2) Were percent differences for each analyte within the method-required QC limits?	**X**				
		3) Was the ICAL curve verified for each analyte?	**X**				
		4) Was the absolute value of the analyte concentration in the inorganic CCB < MDL?	**X**				
S3	O	**Mass Spectral Tuning:**					
		1) Was the appropriate compound for the method used for tuning?	**X**				
		2) Were ion abundance data within the method-required QC limits?	**X**				
S4	O	**Internal Standards (IS):**					
		1) Were IS area counts and retention times within the method-required QC limits?	**X**				
S5	OI	**Raw Data (NELAC Section 5.5.10)**					
		1) Were the raw data (for example, chromatograms, spectral data) reviewed by an analyst?	**X**				
		2) Were data associated with manual integrations flagged on the raw data?	**X**				
S6	O	**Dual Column Confirmation**					
		1) Did dual column confirmation results meet the method-required QC?			**X**		
S7	O	**Tentatively Identified Compounds (TICs):**					
		1) If TICs were requested, were the mass spectra and TIC data subject to appropriate checks?			**X**		
S8	I	**Interference Check Sample (ICS) Results:**					
		1) Were percent recoveries within method QC limits?	**X**				
S9	I	**Serial Dilutions, Post Digestion Spikes, and Method of Standard Additions**					
		1) Were percent differences, recoveries, and the linearity within the QC limits specified in the method?	**X**				
S10	OI	**Method Detection Limit (MDL) Studies**					
		1) Was a MDL study performed for each reported analyte?	**X**				
		2) Is the MDL either adjusted or supported by the analysis of DCSs?	**X**				
S11	OI	**Proficiency Test Reports:**					
		1) Was the lab's performance acceptable on the applicable proficiency tests or evaluation studies?	**X**				
S12	OI	**Standards Documentation**					
		1) Are all standards used in the analyses NIST-traceable or obtained from other appropriate sources?	**X**				
S13	OI	**Compound/Analyte Identification Procedures**					
		1) Are the procedures for compound/analyte identification documented?	**X**				
S14	OI	**Demonstration of Analyst Competency (DOC)**					
		1) Was DOC conducted consistent with NELAC Chapter 5 – Appendix C?	**X**				
		2) Is documentation of the analyst's competency up-to-date and on file?	**X**				
S15	OI	**Verification/Validation Documentation for Methods** (NELAC Chapter 5)					
		1) Are all the methods used to generate the data documented, verified, and validated, where applicable?	**X**				
S16	OI	**Laboratory Standard Operating Procedures (SOPs):**					
		1) Are laboratory SOPs current and on file for each method performed?	**X**				

1 Items identified by the letter "R" should be included in the laboratory data package submitted to the TCEQ in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.
2 O = organic analyses; I = inorganic analyses (and general chemistry, when applicable).
3 NA = Not applicable.
4 NR = Not Reviewed.
5 ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

Laboratory Data Package Signature Page – RG-366/TRRP-13

This data package consists of:

This signature page, the laboratory review checklist, and the following reportable data:

R1 Field chain-of-custody documentation;
R2 Sample identification cross-reference;
R3 Test reports (analytical data sheets) for each environmental sample that includes:
  a) Items consistent with NELAC Chapter 5,
  b) dilution factors,
  c) preparation methods,
  d) cleanup methods, and
  e) if required for the project, tentatively identified compounds (TICs).
R4 Surrogate recovery data including:
  a) Calculated recovery (%R), and
  b) The laboratory's surrogate QC limits.
R5 Test reports/summary forms for blank samples;
R6 Test reports/summary forms for laboratory control samples (LCSs) including:
  a) LCS spiking amounts,
  b) Calculated %R for each analyte, and
  c) The laboratory's LCS QC limits.
R7 Test reports for project matrix spike/matrix spike duplicates (MS/MSDs) including:
  a) Samples associated with the MS/MSD clearly identified,
  b) MS/MSD spiking amounts,
  c) Concentration of each MS/MSD analyte measured in the parent and spiked samples,
  d) Calculated %Rs and relative percent differences (RPDs), and
  e) The laboratory's MS/MSD QC limits
R8 Laboratory analytical duplicate (if applicable) recovery and precision:
  a) The amount of analyte measured in the duplicate,
  b) The calculated RPD, and
  c) The laboratory's QC limits for analytical duplicates.
R9 List of method quantitation limits (MQLs) and detectability check sample results for each analyte for each method and matrix;
R10 Other problems or anomalies.

The Exception Report for every "No" or "Not Reviewed (NR)" item in Laboratory Review checklist and for each analyte, matrix, and method for which the laboratory does not hold NELAC accreditation under the Texas Laboratory Accreditation Program.

Release Statement: I am responsible for the release of this laboratory data package. This laboratory is NELAC accredited under the Texas Laboratory Accreditation Program for all the methods, analytes, and matrices reported in this data package except as noted in the Exception Reports. The data have been reviewed and are technically compliant with the requirements of the methods used, except where noted by the laboratory in the Exception Reports. By my signature below, I affirm to the best of my knowledge that all problems/anomalies observed by the laboratory have been identified in the Laboratory Review Checklist, and no information or data affecting the quality of the data has been knowingly withheld.

This laboratory was last inspected by TCEQ on June 1-5, 2015. Any findings affecting the data in this laboratory data package are noted in the Exception Reports herein. The official signing the cover page of the report in which these data are used is responsible for releasing this data package and is by signature affirming the above release statement is true.

John DuPont – General Manager

Scott Schroeder – Technical Director



Signature

08/31/16

Date

DHL Analytical, Inc. **Date:** *23-Aug-16*

CLIENT: Arcadis
Project: Laredo SGR
Lab Order: 1607337

CASE NARRATIVE

This case narrative describes abnormalities and deviations that may affect the results and summarizes all known issues that need to be highlighted for the data user to assess the results. This case narrative and the report contents are compliant with DoD QSM Ver. 5.0 and NELAC.

The "U" flag indicates the results for that sample are nondetect.

Samples were analyzed using the methods outlined in the following references:

Method SW8270D-LL - PAH Analysis (The compound Benzo[j]fluoranthene is not NELAC or DOD Certified)
Method SW6020A- Metals Analysis

Exception Report R1-01

Samples were received on and log-in performed on 7/29/2016. A total of 26 samples were received and analyzed. The samples arrived in good condition and were properly packaged.

Exception Report R7-02

For PAH Analysis, for Batch 76564, an MS/MSD is not required for Equipment Blank matrices. An LCS was performed as Batch QC.

Exception Report R7-03

For Metals Analysis, for soil Batch 76717, the recovery of Lead for the Matrix Spike and Matrix Spike Duplicate (1607317-27 MS/MSD) was above the method control limits. These are flagged accordingly in the QC Summary Report. This analyte was within method control limits in the associated LCS. No further corrective action was taken.

For PAH Analysis, for soil Batch 76629, the recoveries of eleven compounds for the Matrix Spike and Matrix Spike Duplicate (1607337-10 MS/MSD) were outside of the method control limits. These are flagged accordingly in the QC Summary Report. These compounds were within method control limits in the associated LCS. No further corrective action was taken.

Exception Report R10-01

For PAH Analysis, the soil samples were diluted due to observed color of extract; dilution meets project specifications.

CLIENT:	Arcadis
Project:	Laredo SGR
Lab Order:	1607337

CASE NARRATIVE

For Metals Analysis, for Batch 76687, the Serial Dilution was mis-prepared which yielded unusable data and will not be reported. The associated samples were Equipment Blanks and were nondetect for the target analyte, Lead. The associated Post Digestion Spike was within method control limits and will be reported as Batch QC. Client was informed and no further corrective action was taken.

For all of the samples in this project, DHL Analytical performed an Incremental Sampling Method (ISM) according to an internal SOP, as approved by the client and included in the project QAPP. All of the soil samples in this workorder consist of the following sample types: subsurface soil samples processed to pass a #10 sieve (2mm).

A summary of project communication follows:

The Subcontract Agreement No. D16-003 for Arcadis Project No. 04285081.0000.00043 was sent to DHL Analytical from client and signed on 1/6/2016, the contract for work signed and approved by both parties on 1/12/2016. A Modification No. 01-D16-003 was signed by both parties on 4/21/2016.

The bottle kit was requested from Alex Walter of Arcadis sent via email to John DuPont on 7/5/2016. The following DHL Bottle Orders:
#7161 sent on 7/14/2016 via Lonestar Overnight Ground to arrive by 7/15/2016.
#7162 sent on 7/18/2016 via Lonestar Overnight Ground to arrive by 7/19/2016.
#7163 sent on 7/20/2016 via Lonestar Overnight Ground to arrive by 7/21/2016.
#7164 sent on 7/22/2016 via Lonestar Overnight Ground to arrive by 7/25/2016.
#7196 sent on 7/22/2016 via Lonestar Overnight Ground to arrive by 7/25/2016.

This sample delivery group arrives at DHL Analytical on and the Sample Summary was sent on 7/29/2016. Associated shipping documents are kept in the project folder and/or client folder as part of the Administrative records filed in the QA office.

DHL project manager/qa staff discussed with client the following issues:
email communications 8/5/2016 - from J. DuPont to the Arcadis Kansas Laredo email group regarding misdirected cooler by FedEx, surrogate(s) below control limits for some samples and QC samples and compounds outside of the control limits for ICV(s). The client accepted the corrective action for the quality variances on 8/8/2016.
email communications 8/10/2016 - from J. DuPont to the Arcadis Kansas Laredo email group regarding request mis-prepared Serial Dilution for Batch 76687 and surrogate(s) below control limits for some samples and QC samples. The client accepted the corrective action for the quality variances on 8/10/2016.
email communications 8/12/2016 - from J. DuPont to the Arcadis Kansas Laredo email group regarding PAH and Lead analysis outside of the method control limits for the MS/MSD(s). The client accepted the corrective action for the quality variances on 8/12/2016.

DHL Analytical, Inc.

Date: *31-Aug-16*

CLIENT: Arcadis
Project: Laredo SGR
Lab Order: 1607337

Work Order Sample Summary

Lab Smp ID	Client Sample ID	Tag Number	Date Collected	Date Recved
1607337-01	SGR-DU009(0-2)-A		07/28/16 09:39 AM	7/29/2016
1607337-02	SGR-DU009(2-4)-A		07/28/16 09:40 AM	7/29/2016
1607337-03	SGR-DU009(4-6)-A		07/28/16 09:41 AM	7/29/2016
1607337-04	SGR-DU009(6-8)-A		07/28/16 09:42 AM	7/29/2016
1607337-05	SGR-DU009(0-2)-B		07/28/16 09:44 AM	7/29/2016
1607337-06	SGR-DU009(2-4)-B		07/28/16 09:45 AM	7/29/2016
1607337-07	SGR-DU009(4-6)-B		07/28/16 09:46 AM	7/29/2016
1607337-08	SGR-DU009(6-8)-B		07/28/16 09:47 AM	7/29/2016
1607337-09	SGR-DU009(0-2)-C		07/28/16 09:49 AM	7/29/2016
1607337-10	SGR-DU009(2-4)-C		07/28/16 09:50 AM	7/29/2016
1607337-11	SGR-DU009(4-6)-C		07/28/16 09:51 AM	7/29/2016
1607337-12	SGR-DU009(6-8)-C		07/28/16 09:52 AM	7/29/2016
1607337-13	EB01(20160728)		07/28/16 10:00 AM	7/29/2016
1607337-14	SGR-DU105(0-2)-A		07/28/16 12:30 PM	7/29/2016
1607337-15	SGR-DU105(2-4)-A		07/28/16 12:32 PM	7/29/2016
1607337-16	SGR-DU105(4-6)-A		07/28/16 12:34 PM	7/29/2016
1607337-17	SGR-DU105(6-8)-A		07/28/16 12:36 PM	7/29/2016
1607337-18	SGR-DU105(0-2)-B		07/28/16 12:40 PM	7/29/2016
1607337-19	SGR-DU105(2-4)-B		07/28/16 12:42 PM	7/29/2016
1607337-20	SGR-DU105(4-6)-B		07/28/16 12:44 PM	7/29/2016
1607337-21	SGR-DU105(6-8)-B		07/28/16 12:46 PM	7/29/2016
1607337-22	SGR-DU105(0-2)-C		07/28/16 12:50 PM	7/29/2016
1607337-23	SGR-DU105(2-4)-C		07/28/16 12:52 PM	7/29/2016
1607337-24	SGR-DU105(4-6)-C		07/28/16 12:54 PM	7/29/2016
1607337-25	SGR-DU105(6-8)-C		07/28/16 12:56 PM	7/29/2016
1607337-26	EB02(20160728)		07/28/16 01:00 PM	7/29/2016

Lab Order: 1607337
Client: Arcadis
Project: Laredo SGR

PREP DATES REPORT

Sample ID	Client Sample ID	Collection Date	Matrix	Test Number	Test Name	Prep Date	Batch ID
1607337-01A	SGR-DU009(0-2)-A	07/28/16 09:39 AM	Soil	SW3550C	Soil Prep Sonication: PAH	08/02/16 12:41 PM	76617
	SGR-DU009(0-2)-A	07/28/16 09:39 AM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/08/16 02:31 PM	76717
1607337-02A	SGR-DU009(2-4)-A	07/28/16 09:40 AM	Soil	SW3550C	Soil Prep Sonication: PAH	08/02/16 12:41 PM	76617
	SGR-DU009(2-4)-A	07/28/16 09:40 AM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/08/16 02:31 PM	76717
1607337-03A	SGR-DU009(4-6)-A	07/28/16 09:41 AM	Soil	SW3550C	Soil Prep Sonication: PAH	08/02/16 12:41 PM	76617
	SGR-DU009(4-6)-A	07/28/16 09:41 AM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/08/16 02:31 PM	76717
1607337-04A	SGR-DU009(6-8)-A	07/28/16 09:42 AM	Soil	SW3550C	Soil Prep Sonication: PAH	08/02/16 12:41 PM	76617
	SGR-DU009(6-8)-A	07/28/16 09:42 AM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/08/16 02:31 PM	76717
1607337-05A	SGR-DU009(0-2)-B	07/28/16 09:44 AM	Soil	SW3550C	Soil Prep Sonication: PAH	08/02/16 12:41 PM	76617
	SGR-DU009(0-2)-B	07/28/16 09:44 AM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/08/16 02:31 PM	76717
1607337-06A	SGR-DU009(2-4)-B	07/28/16 09:45 AM	Soil	SW3550C	Soil Prep Sonication: PAH	08/02/16 12:41 PM	76617
	SGR-DU009(2-4)-B	07/28/16 09:45 AM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/08/16 02:31 PM	76717
1607337-07A	SGR-DU009(4-6)-B	07/28/16 09:46 AM	Soil	SW3550C	Soil Prep Sonication: PAH	08/02/16 12:41 PM	76617
	SGR-DU009(4-6)-B	07/28/16 09:46 AM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/08/16 02:31 PM	76717
1607337-08A	SGR-DU009(6-8)-B	07/28/16 09:47 AM	Soil	SW3550C	Soil Prep Sonication: PAH	08/02/16 12:41 PM	76617
	SGR-DU009(6-8)-B	07/28/16 09:47 AM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/08/16 02:31 PM	76717
1607337-09A	SGR-DU009(0-2)-C	07/28/16 09:49 AM	Soil	SW3550C	Soil Prep Sonication: PAH	08/03/16 08:44 AM	76629
	SGR-DU009(0-2)-C	07/28/16 09:49 AM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/08/16 02:31 PM	76717
1607337-10A	SGR-DU009(2-4)-C	07/28/16 09:50 AM	Soil	SW3550C	Soil Prep Sonication: PAH	08/03/16 08:44 AM	76629
	SGR-DU009(2-4)-C	07/28/16 09:50 AM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/10/16 08:16 AM	76748
1607337-11A	SGR-DU009(4-6)-C	07/28/16 09:51 AM	Soil	SW3550C	Soil Prep Sonication: PAH	08/03/16 08:44 AM	76629
	SGR-DU009(4-6)-C	07/28/16 09:51 AM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/08/16 02:31 PM	76717
1607337-12A	SGR-DU009(6-8)-C	07/28/16 09:52 AM	Soil	SW3550C	Soil Prep Sonication: PAH	08/03/16 08:44 AM	76629
	SGR-DU009(6-8)-C	07/28/16 09:52 AM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/08/16 02:31 PM	76717
1607337-13A	EB01(20160728)	07/28/16 10:00 AM	Equip Blank	SW3005A	Aq Prep Metals : ICP-MS	08/05/16 10:30 AM	76687
1607337-13B	EB01(20160728)	07/28/16 10:00 AM	Equip Blank	SW3510C	Aq Prep Sep Funnel: PAH	07/29/16 10:26 AM	76564
1607337-14A	SGR-DU105(0-2)-A	07/28/16 12:30 PM	Soil	SW3550C	Soil Prep Sonication: PAH	08/03/16 08:44 AM	76629
	SGR-DU105(0-2)-A	07/28/16 12:30 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/10/16 08:16 AM	76748

Lab Order: 1607337
Client: Arcadis
Project: Laredo SGR

PREP DATES REPORT

Sample ID	Client Sample ID	Collection Date	Matrix	Test Number	Test Name	Prep Date	Batch ID
1607337-15A	SGR-DU105(2-4)-A	07/28/16 12:32 PM	Soil	SW3550C	Soil Prep Sonication: PAH	08/03/16 08:44 AM	76629
	SGR-DU105(2-4)-A	07/28/16 12:32 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/10/16 08:16 AM	76748
1607337-16A	SGR-DU105(4-6)-A	07/28/16 12:34 PM	Soil	SW3550C	Soil Prep Sonication: PAH	08/03/16 08:44 AM	76629
	SGR-DU105(4-6)-A	07/28/16 12:34 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/10/16 08:16 AM	76748
1607337-17A	SGR-DU105(6-8)-A	07/28/16 12:36 PM	Soil	SW3550C	Soil Prep Sonication: PAH	08/03/16 08:44 AM	76629
	SGR-DU105(6-8)-A	07/28/16 12:36 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/10/16 08:16 AM	76748
1607337-18A	SGR-DU105(0-2)-B	07/28/16 12:40 PM	Soil	SW3550C	Soil Prep Sonication: PAH	08/03/16 08:44 AM	76629
	SGR-DU105(0-2)-B	07/28/16 12:40 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/10/16 08:16 AM	76748
1607337-19A	SGR-DU105(2-4)-B	07/28/16 12:42 PM	Soil	SW3550C	Soil Prep Sonication: PAH	08/03/16 08:44 AM	76629
	SGR-DU105(2-4)-B	07/28/16 12:42 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/10/16 08:16 AM	76748
1607337-20A	SGR-DU105(4-6)-B	07/28/16 12:44 PM	Soil	SW3550C	Soil Prep Sonication: PAH	08/03/16 08:44 AM	76629
	SGR-DU105(4-6)-B	07/28/16 12:44 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/10/16 08:16 AM	76748
1607337-21A	SGR-DU105(6-8)-B	07/28/16 12:46 PM	Soil	SW3550C	Soil Prep Sonication: PAH	08/03/16 08:44 AM	76629
	SGR-DU105(6-8)-B	07/28/16 12:46 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/10/16 08:16 AM	76748
1607337-22A	SGR-DU105(0-2)-C	07/28/16 12:50 PM	Soil	SW3550C	Soil Prep Sonication: PAH	08/03/16 08:44 AM	76629
	SGR-DU105(0-2)-C	07/28/16 12:50 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/10/16 08:16 AM	76748
1607337-23A	SGR-DU105(2-4)-C	07/28/16 12:52 PM	Soil	SW3550C	Soil Prep Sonication: PAH	08/03/16 08:44 AM	76629
	SGR-DU105(2-4)-C	07/28/16 12:52 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/10/16 08:16 AM	76748
1607337-24A	SGR-DU105(4-6)-C	07/28/16 12:54 PM	Soil	SW3550C	Soil Prep Sonication: PAH	08/03/16 08:44 AM	76629
	SGR-DU105(4-6)-C	07/28/16 12:54 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/10/16 08:16 AM	76748
1607337-25A	SGR-DU105(6-8)-C	07/28/16 12:56 PM	Soil	SW3550C	Soil Prep Sonication: PAH	08/03/16 08:44 AM	76629
	SGR-DU105(6-8)-C	07/28/16 12:56 PM	Soil	SW3050B	Soil Prep Total Metals: ICP-MS	08/10/16 08:16 AM	76748
1607337-26A	EB02(20160728)	07/28/16 01:00 PM	Equip Blank	SW3005A	Aq Prep Metals : ICP-MS	08/05/16 10:30 AM	76687
1607337-26B	EB02(20160728)	07/28/16 01:00 PM	Equip Blank	SW3510C	Aq Prep Sep Funnel: PAH	07/29/16 10:26 AM	76564

Lab Order: 1607337
Client: Arcadis
Project: Laredo SGR

ISM PREP DATES REPORT

Sample ID	Client Sample ID	Collection Date	Matrix	Test Number	Test Name	Prep Date	Batch ID
1607337-01A	SGR-DU009(0-2)-A	7/28/2016 9:39:00 AM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/29/2016 3:00:00 PM	76570
1607337-02A	SGR-DU009(2-4)-A	7/28/2016 9:40:00 AM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/29/2016 3:00:00 PM	76570
1607337-03A	SGR-DU009(4-6)-A	7/28/2016 9:41:00 AM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/29/2016 3:00:00 PM	76570
1607337-04A	SGR-DU009(6-8)-A	7/28/2016 9:42:00 AM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/29/2016 3:00:00 PM	76570
1607337-05A	SGR-DU009(0-2)-B	7/28/2016 9:44:00 AM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/29/2016 3:00:00 PM	76570
1607337-06A	SGR-DU009(2-4)-B	7/28/2016 9:45:00 AM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/29/2016 3:00:00 PM	76570
1607337-07A	SGR-DU009(4-6)-B	7/28/2016 9:46:00 AM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/29/2016 3:00:00 PM	76570
1607337-08A	SGR-DU009(6-8)-B	7/28/2016 9:47:00 AM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/29/2016 3:00:00 PM	76570
1607337-09A	SGR-DU009(0-2)-C	7/28/2016 9:49:00 AM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/29/2016 3:00:00 PM	76570
1607337-10A	SGR-DU009(2-4)-C	7/28/2016 9:50:00 AM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/29/2016 3:00:00 PM	76570
1607337-11A	SGR-DU009(4-6)-C	7/28/2016 9:51:00 AM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/29/2016 3:00:00 PM	76570
1607337-12A	SGR-DU009(6-8)-C	7/28/2016 9:52:00 AM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/29/2016 3:00:00 PM	76570
1607337-14A	SGR-DU105(0-2)-A	7/28/2016 12:30:00 PM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/29/2016 3:00:00 PM	76570
1607337-15A	SGR-DU105(2-4)-A	7/28/2016 12:32:00 PM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/29/2016 3:00:00 PM	76570
1607337-16A	SGR-DU105(4-6)-A	7/28/2016 12:34:00 PM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/29/2016 3:00:00 PM	76570
1607337-17A	SGR-DU105(6-8)-A	7/28/2016 12:36:00 PM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/29/2016 3:00:00 PM	76570
1607337-18A	SGR-DU105(0-2)-B	7/28/2016 12:40:00 PM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/29/2016 3:00:00 PM	76570
1607337-19A	SGR-DU105(2-4)-B	7/28/2016 12:42:00 PM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/29/2016 3:00:00 PM	76570
1607337-20A	SGR-DU105(4-6)-B	7/28/2016 12:44:00 PM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/29/2016 3:00:00 PM	76570
1607337-21A	SGR-DU105(6-8)-B	7/28/2016 12:46:00 PM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/29/2016 3:00:00 PM	76570
1607337-22A	SGR-DU105(0-2)-C	7/28/2016 12:50:00 PM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/29/2016 3:00:00 PM	76570
1607337-23A	SGR-DU105(2-4)-C	7/28/2016 12:52:00 PM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/29/2016 3:00:00 PM	76570
1607337-24A	SGR-DU105(4-6)-C	7/28/2016 12:54:00 PM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/29/2016 3:00:00 PM	76570
1607337-25A	SGR-DU105(6-8)-C	7/28/2016 12:56:00 PM	Soil	ISM-2	Incremental Sample Prep 2mm Sieve	7/29/2016 3:00:00 PM	76570

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Project: Laredo SGR

ANALYTICAL DATES REPORT

Sample ID	Client Sample ID	Matrix	Test Number	Test Name	Batch ID	Dilution	Analysis Date	Run ID
1607337-01A	SGR-DU009(0-2)-A	Soil	SW8270D-LL	PAHs: GC/MS	76617	10	08/09/16 09:45 PM	GCMS8_160809A
	SGR-DU009(0-2)-A	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76717	5	08/11/16 01:46 AM	ICP-MS3_160810B
1607337-02A	SGR-DU009(2-4)-A	Soil	SW8270D-LL	PAHs: GC/MS	76617	10	08/09/16 10:25 PM	GCMS8_160809A
	SGR-DU009(2-4)-A	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76717	5	08/11/16 02:34 AM	ICP-MS3_160810B
1607337-03A	SGR-DU009(4-6)-A	Soil	SW8270D-LL	PAHs: GC/MS	76617	10	08/09/16 11:05 PM	GCMS8_160809A
	SGR-DU009(4-6)-A	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76717	5	08/11/16 02:40 AM	ICP-MS3_160810B
1607337-04A	SGR-DU009(6-8)-A	Soil	SW8270D-LL	PAHs: GC/MS	76617	10	08/09/16 11:45 PM	GCMS8_160809A
	SGR-DU009(6-8)-A	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76717	5	08/11/16 02:46 AM	ICP-MS3_160810B
1607337-05A	SGR-DU009(0-2)-B	Soil	SW8270D-LL	PAHs: GC/MS	76617	10	08/10/16 12:24 AM	GCMS8_160809A
	SGR-DU009(0-2)-B	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76717	5	08/11/16 02:52 AM	ICP-MS3_160810B
1607337-06A	SGR-DU009(2-4)-B	Soil	SW8270D-LL	PAHs: GC/MS	76617	10	08/10/16 01:04 AM	GCMS8_160809A
	SGR-DU009(2-4)-B	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76717	5	08/11/16 02:58 AM	ICP-MS3_160810B
1607337-07A	SGR-DU009(4-6)-B	Soil	SW8270D-LL	PAHs: GC/MS	76617	10	08/10/16 01:43 AM	GCMS8_160809A
	SGR-DU009(4-6)-B	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76717	5	08/11/16 03:10 AM	ICP-MS3_160810B
1607337-08A	SGR-DU009(6-8)-B	Soil	SW8270D-LL	PAHs: GC/MS	76617	10	08/10/16 02:23 AM	GCMS8_160809A
	SGR-DU009(6-8)-B	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76717	5	08/11/16 03:16 AM	ICP-MS3_160810B
1607337-09A	SGR-DU009(0-2)-C	Soil	SW8270D-LL	PAHs: GC/MS	76629	10	08/10/16 09:15 AM	GCMS8_160810A
	SGR-DU009(0-2)-C	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76717	5	08/11/16 03:22 AM	ICP-MS3_160810B
1607337-10A	SGR-DU009(2-4)-C	Soil	SW8270D-LL	PAHs: GC/MS	76629	10	08/10/16 09:55 AM	GCMS8_160810A
	SGR-DU009(2-4)-C	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76748	5	08/11/16 05:10 PM	ICP-MS4_160811D
1607337-11A	SGR-DU009(4-6)-C	Soil	SW8270D-LL	PAHs: GC/MS	76629	10	08/10/16 10:35 AM	GCMS8_160810A
	SGR-DU009(4-6)-C	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76717	5	08/11/16 03:28 AM	ICP-MS3_160810B
1607337-12A	SGR-DU009(6-8)-C	Soil	SW8270D-LL	PAHs: GC/MS	76629	10	08/10/16 11:14 AM	GCMS8_160810A
	SGR-DU009(6-8)-C	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76717	5	08/11/16 03:34 AM	ICP-MS3_160810B
1607337-13A	EB01(20160728)	Equip Blank	SW6020A	Trace Metals: ICP-MS - Water	76687	1	08/10/16 02:28 AM	ICP-MS3_160809B
1607337-13B	EB01(20160728)	Equip Blank	SW8270D-LL	PAHs: GC/MS	76564	1	08/03/16 11:46 PM	GCMS8_160803B
1607337-14A	SGR-DU105(0-2)-A	Soil	SW8270D-LL	PAHs: GC/MS	76629	10	08/10/16 11:54 AM	GCMS8_160810A
	SGR-DU105(0-2)-A	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76748	5	08/11/16 05:14 PM	ICP-MS4_160811D

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ANALYTICAL DATES REPORT

Sample ID	Client Sample ID	Matrix	Test Number	Test Name	Batch ID	Dilution	Analysis Date	Run ID
1607337-15A	SGR-DU105(2-4)-A	Soil	SW8270D-LL	PAHs: GC/MS	76629	10	08/10/16 12:34 PM	GCMS8_160810A
	SGR-DU105(2-4)-A	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76748	5	08/11/16 05:16 PM	ICP-MS4_160811D
1607337-16A	SGR-DU105(4-6)-A	Soil	SW8270D-LL	PAHs: GC/MS	76629	10	08/10/16 01:14 PM	GCMS8_160810A
	SGR-DU105(4-6)-A	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76748	5	08/11/16 05:18 PM	ICP-MS4_160811D
1607337-17A	SGR-DU105(6-8)-A	Soil	SW8270D-LL	PAHs: GC/MS	76629	10	08/10/16 01:54 PM	GCMS8_160810A
	SGR-DU105(6-8)-A	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76748	5	08/11/16 05:20 PM	ICP-MS4_160811D
1607337-18A	SGR-DU105(0-2)-B	Soil	SW8270D-LL	PAHs: GC/MS	76629	10	08/10/16 02:34 PM	GCMS8_160810A
	SGR-DU105(0-2)-B	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76748	5	08/11/16 05:22 PM	ICP-MS4_160811D
1607337-19A	SGR-DU105(2-4)-B	Soil	SW8270D-LL	PAHs: GC/MS	76629	10	08/10/16 03:14 PM	GCMS8_160810A
	SGR-DU105(2-4)-B	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76748	5	08/11/16 05:24 PM	ICP-MS4_160811D
1607337-20A	SGR-DU105(4-6)-B	Soil	SW8270D-LL	PAHs: GC/MS	76629	10	08/10/16 03:55 PM	GCMS8_160810A
	SGR-DU105(4-6)-B	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76748	5	08/11/16 05:26 PM	ICP-MS4_160811D
1607337-21A	SGR-DU105(6-8)-B	Soil	SW8270D-LL	PAHs: GC/MS	76629	10	08/10/16 04:35 PM	GCMS8_160810A
	SGR-DU105(6-8)-B	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76748	5	08/11/16 05:28 PM	ICP-MS4_160811D
1607337-22A	SGR-DU105(0-2)-C	Soil	SW8270D-LL	PAHs: GC/MS	76629	10	08/10/16 07:14 PM	GCMS8_160810A
	SGR-DU105(0-2)-C	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76748	5	08/11/16 05:30 PM	ICP-MS4_160811D
1607337-23A	SGR-DU105(2-4)-C	Soil	SW8270D-LL	PAHs: GC/MS	76629	10	08/10/16 07:54 PM	GCMS8_160810A
	SGR-DU105(2-4)-C	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76748	5	08/11/16 05:46 PM	ICP-MS4_160811D
1607337-24A	SGR-DU105(4-6)-C	Soil	SW8270D-LL	PAHs: GC/MS	76629	10	08/10/16 08:34 PM	GCMS8_160810A
	SGR-DU105(4-6)-C	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76748	5	08/11/16 05:48 PM	ICP-MS4_160811D
1607337-25A	SGR-DU105(6-8)-C	Soil	SW8270D-LL	PAHs: GC/MS	76629	10	08/10/16 09:14 PM	GCMS8_160810A
	SGR-DU105(6-8)-C	Soil	SW6020A	Trace Metals: ICP-MS - Solid	76748	5	08/11/16 05:50 PM	ICP-MS4_160811D
1607337-26A	EB02(20160728)	Equip Blank	SW6020A	Trace Metals: ICP-MS - Water	76687	1	08/09/16 11:21 PM	ICP-MS3_160809B
1607337-26B	EB02(20160728)	Equip Blank	SW8270D-LL	PAHs: GC/MS	76564	1	08/04/16 12:26 AM	GCMS8_160803B

DHL Analytical, Inc.

Date: *31-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU009(0-2)-A
Project:	Laredo SGR	**Lab ID:**	1607337-01
Project No:	04285081.0000.00044	**Collection Date:**	07/28/16 09:39 AM
Lab Order:	1607337	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **CVD**
Lead	50.6	0.0952	0.286	0.143		mg/Kg-dry	5	08/11/16 01:46 AM
IS: Bismuth	65.0	0	30-120	0		%REC	5	08/11/16 01:46 AM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0674	0.0497	0.0994	0.0746	J	mg/Kg-dry	10	08/09/16 09:45 PM
Acenaphthylene	0.0746	0.0497	0.0994	0.0746	U	mg/Kg-dry	10	08/09/16 09:45 PM
Anthracene	0.167	0.0497	0.0994	0.0746		mg/Kg-dry	10	08/09/16 09:45 PM
Benzo[a]anthracene	1.39	0.0497	0.0994	0.0746		mg/Kg-dry	10	08/09/16 09:45 PM
Benzo[a]pyrene	1.62	0.0497	0.0994	0.0746		mg/Kg-dry	10	08/09/16 09:45 PM
Benzo[b]fluoranthene	1.58	0.0497	0.0994	0.0746		mg/Kg-dry	10	08/09/16 09:45 PM
Benzo[e]pyrene	1.21	0.0497	0.0994	0.0746		mg/Kg-dry	10	08/09/16 09:45 PM
Benzo[g,h,i]perylene	1.15	0.0497	0.0994	0.0746		mg/Kg-dry	10	08/09/16 09:45 PM
Benzo[j]fluoranthene	0.796	0.0497	0.0994	0.0746	N	mg/Kg-dry	10	08/09/16 09:45 PM
Benzo[k]fluoranthene	0.775	0.0497	0.0994	0.0746		mg/Kg-dry	10	08/09/16 09:45 PM
Chrysene	1.74	0.0497	0.0994	0.0746		mg/Kg-dry	10	08/09/16 09:45 PM
Dibenz[a,h]anthracene	0.240	0.0497	0.0994	0.0746		mg/Kg-dry	10	08/09/16 09:45 PM
Fluoranthene	2.43	0.0497	0.0994	0.0746		mg/Kg-dry	10	08/09/16 09:45 PM
Fluorene	0.0746	0.0497	0.0994	0.0746	U	mg/Kg-dry	10	08/09/16 09:45 PM
Indeno[1,2,3-cd]pyrene	0.967	0.0497	0.0994	0.0746		mg/Kg-dry	10	08/09/16 09:45 PM
Phenanthrene	1.10	0.0497	0.0994	0.0746		mg/Kg-dry	10	08/09/16 09:45 PM
Pyrene	2.08	0.0497	0.0994	0.0746		mg/Kg-dry	10	08/09/16 09:45 PM
IS: Acenaphthene-d10	139	0	50-200	0		%REC	10	08/09/16 09:45 PM
IS: Chrysene-d12	97.7	0	50-200	0		%REC	10	08/09/16 09:45 PM
IS: Naphthalene-d8	119	0	50-200	0		%REC	10	08/09/16 09:45 PM
IS: Perylene-d12	106	0	50-200	0		%REC	10	08/09/16 09:45 PM
IS: Phenanthrene-d10	95.4	0	50-200	0		%REC	10	08/09/16 09:45 PM
Surr: 2-Fluorobiphenyl	80.1	0	46-115	0		%REC	10	08/09/16 09:45 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU009(0-2)-A
Project:	Laredo SGR	**Lab ID:**	1607337-01
Project No:	04285081.0000.00044	**Collection Date:**	07/28/16 09:39 AM
Lab Order:	1607337	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	76.8	0	58-133	0		%REC	10	08/09/16 09:45 PM

Qualifiers:	*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
	C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
	E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
	MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
	RL	Reporting Limit	S	Spike Recovery outside control limits
	N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *31-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU009(2-4)-A
Project:	Laredo SGR	**Lab ID:**	1607337-02
Project No:	04285081.0000.00044	**Collection Date:**	07/28/16 09:40 AM
Lab Order:	1607337	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **CVD**
Lead	6.88	0.0980	0.294	0.147		mg/Kg-dry	5	08/11/16 02:34 AM
IS: Bismuth	57.9	0	30-120	0		%REC	5	08/11/16 02:34 AM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0737	0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/09/16 10:25 PM
Acenaphthylene	0.0737	0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/09/16 10:25 PM
Anthracene	0.0737	0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/09/16 10:25 PM
Benzo[a]anthracene	0.0737	0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/09/16 10:25 PM
Benzo[a]pyrene	0.0737	0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/09/16 10:25 PM
Benzo[b]fluoranthene	0.0737	0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/09/16 10:25 PM
Benzo[e]pyrene	0.0737	0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/09/16 10:25 PM
Benzo[g,h,i]perylene	0.0737	0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/09/16 10:25 PM
Benzo[j]fluoranthene	0.0737	0.0492	0.0983	0.0737	NU	mg/Kg-dry	10	08/09/16 10:25 PM
Benzo[k]fluoranthene	0.0737	0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/09/16 10:25 PM
Chrysene	0.0737	0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/09/16 10:25 PM
Dibenz[a,h]anthracene	0.0737	0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/09/16 10:25 PM
Fluoranthene	0.0737	0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/09/16 10:25 PM
Fluorene	0.0737	0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/09/16 10:25 PM
Indeno[1,2,3-cd]pyrene	0.0737	0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/09/16 10:25 PM
Phenanthrene	0.0737	0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/09/16 10:25 PM
Pyrene	0.0737	0.0492	0.0983	0.0737	U	mg/Kg-dry	10	08/09/16 10:25 PM
IS: Acenaphthene-d10	141	0	50-200	0		%REC	10	08/09/16 10:25 PM
IS: Chrysene-d12	97.2	0	50-200	0		%REC	10	08/09/16 10:25 PM
IS: Naphthalene-d8	119	0	50-200	0		%REC	10	08/09/16 10:25 PM
IS: Perylene-d12	106	0	50-200	0		%REC	10	08/09/16 10:25 PM
IS: Phenanthrene-d10	95.5	0	50-200	0		%REC	10	08/09/16 10:25 PM
Surr: 2-Fluorobiphenyl	79.5	0	46-115	0		%REC	10	08/09/16 10:25 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU009(2-4)-A
Project:	Laredo SGR	**Lab ID:**	1607337-02
Project No:	04285081.0000.00044	**Collection Date:**	07/28/16 09:40 AM
Lab Order:	1607337	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	73.6	0	58-133	0		%REC	10	08/09/16 10:25 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *31-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU009(4-6)-A
Project:	Laredo SGR	**Lab ID:**	1607337-03
Project No:	04285081.0000.00044	**Collection Date:**	07/28/16 09:41 AM
Lab Order:	1607337	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **CVD**
Lead	5.21	0.0926	0.278	0.139		mg/Kg-dry	5	08/11/16 02:40 AM
IS: Bismuth	61.6	0	30-120	0		%REC	5	08/11/16 02:40 AM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	08/09/16 11:05 PM
Acenaphthylene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	08/09/16 11:05 PM
Anthracene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	08/09/16 11:05 PM
Benzo[a]anthracene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	08/09/16 11:05 PM
Benzo[a]pyrene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	08/09/16 11:05 PM
Benzo[b]fluoranthene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	08/09/16 11:05 PM
Benzo[e]pyrene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	08/09/16 11:05 PM
Benzo[g,h,i]perylene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	08/09/16 11:05 PM
Benzo[j]fluoranthene	0.0749	0.0499	0.0998	0.0749	NU	mg/Kg-dry	10	08/09/16 11:05 PM
Benzo[k]fluoranthene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	08/09/16 11:05 PM
Chrysene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	08/09/16 11:05 PM
Dibenz[a,h]anthracene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	08/09/16 11:05 PM
Fluoranthene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	08/09/16 11:05 PM
Fluorene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	08/09/16 11:05 PM
Indeno[1,2,3-cd]pyrene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	08/09/16 11:05 PM
Phenanthrene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	08/09/16 11:05 PM
Pyrene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	08/09/16 11:05 PM
IS: Acenaphthene-d10	141	0	50-200	0		%REC	10	08/09/16 11:05 PM
IS: Chrysene-d12	99.8	0	50-200	0		%REC	10	08/09/16 11:05 PM
IS: Naphthalene-d8	123	0	50-200	0		%REC	10	08/09/16 11:05 PM
IS: Perylene-d12	110	0	50-200	0		%REC	10	08/09/16 11:05 PM
IS: Phenanthrene-d10	96.9	0	50-200	0		%REC	10	08/09/16 11:05 PM
Surr: 2-Fluorobiphenyl	75.2	0	46-115	0		%REC	10	08/09/16 11:05 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU009(4-6)-A
Project:	Laredo SGR	**Lab ID:**	1607337-03
Project No:	04285081.0000.00044	**Collection Date:**	07/28/16 09:41 AM
Lab Order:	1607337	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	74.9	0	58-133	0		%REC	10	08/09/16 11:05 PM

Qualifiers:	*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
	C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
	E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
	MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
	RL	Reporting Limit	S	Spike Recovery outside control limits
	N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU009(6-8)-A
Project:	Laredo SGR	**Lab ID:**	1607337-04
Project No:	04285081.0000.00044	**Collection Date:**	07/28/16 09:42 AM
Lab Order:	1607337	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **CVD**
Lead	5.95	0.0980	0.294	0.147		mg/Kg-dry	5	08/11/16 02:46 AM
IS: Bismuth	61.4	0	30-120	0		%REC	5	08/11/16 02:46 AM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	08/09/16 11:45 PM
Acenaphthylene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	08/09/16 11:45 PM
Anthracene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	08/09/16 11:45 PM
Benzo[a]anthracene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	08/09/16 11:45 PM
Benzo[a]pyrene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	08/09/16 11:45 PM
Benzo[b]fluoranthene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	08/09/16 11:45 PM
Benzo[e]pyrene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	08/09/16 11:45 PM
Benzo[g,h,i]perylene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	08/09/16 11:45 PM
Benzo[j]fluoranthene	0.0742	0.0495	0.0989	0.0742	NU	mg/Kg-dry	10	08/09/16 11:45 PM
Benzo[k]fluoranthene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	08/09/16 11:45 PM
Chrysene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	08/09/16 11:45 PM
Dibenz[a,h]anthracene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	08/09/16 11:45 PM
Fluoranthene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	08/09/16 11:45 PM
Fluorene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	08/09/16 11:45 PM
Indeno[1,2,3-cd]pyrene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	08/09/16 11:45 PM
Phenanthrene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	08/09/16 11:45 PM
Pyrene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	08/09/16 11:45 PM
IS: Acenaphthene-d10	144	0	50-200	0		%REC	10	08/09/16 11:45 PM
IS: Chrysene-d12	104	0	50-200	0		%REC	10	08/09/16 11:45 PM
IS: Naphthalene-d8	126	0	50-200	0		%REC	10	08/09/16 11:45 PM
IS: Perylene-d12	113	0	50-200	0		%REC	10	08/09/16 11:45 PM
IS: Phenanthrene-d10	100	0	50-200	0		%REC	10	08/09/16 11:45 PM
Surr: 2-Fluorobiphenyl	74.1	0	46-115	0		%REC	10	08/09/16 11:45 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU009(6-8)-A
Project:	Laredo SGR	**Lab ID:**	1607337-04
Project No:	04285081.0000.00044	**Collection Date:**	07/28/16 09:42 AM
Lab Order:	1607337	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	73.3	0	58-133	0		%REC	10	08/09/16 11:45 PM

Qualifiers:	*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
	C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
	E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
	MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
	RL	Reporting Limit	S	Spike Recovery outside control limits
	N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU009(0-2)-B
Project:	Laredo SGR	**Lab ID:**	1607337-05
Project No:	04285081.0000.00044	**Collection Date:**	07/28/16 09:44 AM
Lab Order:	1607337	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **CVD**
Lead	11.7	0.0962	0.288	0.144		mg/Kg-dry	5	08/11/16 02:52 AM
IS: Bismuth	56.3	0	30-120	0		%REC	5	08/11/16 02:52 AM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0740	0.0493	0.0986	0.0740	U	mg/Kg-dry	10	08/10/16 12:24 AM
Acenaphthylene	0.0740	0.0493	0.0986	0.0740	U	mg/Kg-dry	10	08/10/16 12:24 AM
Anthracene	0.0528	0.0493	0.0986	0.0740	J	mg/Kg-dry	10	08/10/16 12:24 AM
Benzo[a]anthracene	0.520	0.0493	0.0986	0.0740		mg/Kg-dry	10	08/10/16 12:24 AM
Benzo[a]pyrene	0.636	0.0493	0.0986	0.0740		mg/Kg-dry	10	08/10/16 12:24 AM
Benzo[b]fluoranthene	0.608	0.0493	0.0986	0.0740		mg/Kg-dry	10	08/10/16 12:24 AM
Benzo[e]pyrene	0.487	0.0493	0.0986	0.0740		mg/Kg-dry	10	08/10/16 12:24 AM
Benzo[g,h,i]perylene	0.503	0.0493	0.0986	0.0740		mg/Kg-dry	10	08/10/16 12:24 AM
Benzo[j]fluoranthene	0.318	0.0493	0.0986	0.0740	N	mg/Kg-dry	10	08/10/16 12:24 AM
Benzo[k]fluoranthene	0.307	0.0493	0.0986	0.0740		mg/Kg-dry	10	08/10/16 12:24 AM
Chrysene	0.660	0.0493	0.0986	0.0740		mg/Kg-dry	10	08/10/16 12:24 AM
Dibenz[a,h]anthracene	0.0942	0.0493	0.0986	0.0740	J	mg/Kg-dry	10	08/10/16 12:24 AM
Fluoranthene	0.970	0.0493	0.0986	0.0740		mg/Kg-dry	10	08/10/16 12:24 AM
Fluorene	0.0740	0.0493	0.0986	0.0740	U	mg/Kg-dry	10	08/10/16 12:24 AM
Indeno[1,2,3-cd]pyrene	0.413	0.0493	0.0986	0.0740		mg/Kg-dry	10	08/10/16 12:24 AM
Phenanthrene	0.399	0.0493	0.0986	0.0740		mg/Kg-dry	10	08/10/16 12:24 AM
Pyrene	0.832	0.0493	0.0986	0.0740		mg/Kg-dry	10	08/10/16 12:24 AM
IS: Acenaphthene-d10	147	0	50-200	0		%REC	10	08/10/16 12:24 AM
IS: Chrysene-d12	106	0	50-200	0		%REC	10	08/10/16 12:24 AM
IS: Naphthalene-d8	130	0	50-200	0		%REC	10	08/10/16 12:24 AM
IS: Perylene-d12	115	0	50-200	0		%REC	10	08/10/16 12:24 AM
IS: Phenanthrene-d10	99.7	0	50-200	0		%REC	10	08/10/16 12:24 AM
Surr: 2-Fluorobiphenyl	75.2	0	46-115	0		%REC	10	08/10/16 12:24 AM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU009(0-2)-B
Project:	Laredo SGR	**Lab ID:**	1607337-05
Project No:	04285081.0000.00044	**Collection Date:**	07/28/16 09:44 AM
Lab Order:	1607337	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	77.8	0	58-133	0		%REC	10	08/10/16 12:24 AM

Qualifiers:	*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
	C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
	E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
	MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
	RL	Reporting Limit	S	Spike Recovery outside control limits
	N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *31-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU009(2-4)-B
Project:	Laredo SGR	**Lab ID:**	1607337-06
Project No:	04285081.0000.00044	**Collection Date:**	07/28/16 09:45 AM
Lab Order:	1607337	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **CVD**
Lead	6.06	0.0962	0.288	0.144		mg/Kg-dry	5	08/11/16 02:58 AM
IS: Bismuth	55.5	0	30-120	0		%REC	5	08/11/16 02:58 AM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/10/16 01:04 AM
Acenaphthylene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/10/16 01:04 AM
Anthracene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/10/16 01:04 AM
Benzo[a]anthracene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/10/16 01:04 AM
Benzo[a]pyrene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/10/16 01:04 AM
Benzo[b]fluoranthene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/10/16 01:04 AM
Benzo[e]pyrene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/10/16 01:04 AM
Benzo[g,h,i]perylene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/10/16 01:04 AM
Benzo[j]fluoranthene	0.0744	0.0496	0.0992	0.0744	NU	mg/Kg-dry	10	08/10/16 01:04 AM
Benzo[k]fluoranthene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/10/16 01:04 AM
Chrysene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/10/16 01:04 AM
Dibenz[a,h]anthracene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/10/16 01:04 AM
Fluoranthene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/10/16 01:04 AM
Fluorene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/10/16 01:04 AM
Indeno[1,2,3-cd]pyrene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/10/16 01:04 AM
Phenanthrene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/10/16 01:04 AM
Pyrene	0.0744	0.0496	0.0992	0.0744	U	mg/Kg-dry	10	08/10/16 01:04 AM
IS: Acenaphthene-d10	147	0	50-200	0		%REC	10	08/10/16 01:04 AM
IS: Chrysene-d12	102	0	50-200	0		%REC	10	08/10/16 01:04 AM
IS: Naphthalene-d8	127	0	50-200	0		%REC	10	08/10/16 01:04 AM
IS: Perylene-d12	111	0	50-200	0		%REC	10	08/10/16 01:04 AM
IS: Phenanthrene-d10	99.9	0	50-200	0		%REC	10	08/10/16 01:04 AM
Surr: 2-Fluorobiphenyl	77.4	0	46-115	0		%REC	10	08/10/16 01:04 AM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU009(2-4)-B
Project:	Laredo SGR	**Lab ID:**	1607337-06
Project No:	04285081.0000.00044	**Collection Date:**	07/28/16 09:45 AM
Lab Order:	1607337	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	73.8	0	58-133	0		%REC	10	08/10/16 01:04 AM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU009(4-6)-B
Project:	Laredo SGR	**Lab ID:**	1607337-07
Project No:	04285081.0000.00044	**Collection Date:**	07/28/16 09:46 AM
Lab Order:	1607337	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **CVD**
Lead	4.90	0.0952	0.286	0.143		mg/Kg-dry	5	08/11/16 03:10 AM
IS: Bismuth	51.2	0	30-120	0		%REC	5	08/11/16 03:10 AM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	08/10/16 01:43 AM
Acenaphthylene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	08/10/16 01:43 AM
Anthracene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	08/10/16 01:43 AM
Benzo[a]anthracene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	08/10/16 01:43 AM
Benzo[a]pyrene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	08/10/16 01:43 AM
Benzo[b]fluoranthene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	08/10/16 01:43 AM
Benzo[e]pyrene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	08/10/16 01:43 AM
Benzo[g,h,i]perylene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	08/10/16 01:43 AM
Benzo[j]fluoranthene	0.0747	0.0498	0.0996	0.0747	NU	mg/Kg-dry	10	08/10/16 01:43 AM
Benzo[k]fluoranthene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	08/10/16 01:43 AM
Chrysene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	08/10/16 01:43 AM
Dibenz[a,h]anthracene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	08/10/16 01:43 AM
Fluoranthene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	08/10/16 01:43 AM
Fluorene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	08/10/16 01:43 AM
Indeno[1,2,3-cd]pyrene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	08/10/16 01:43 AM
Phenanthrene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	08/10/16 01:43 AM
Pyrene	0.0747	0.0498	0.0996	0.0747	U	mg/Kg-dry	10	08/10/16 01:43 AM
IS: Acenaphthene-d10	143	0	50-200	0		%REC	10	08/10/16 01:43 AM
IS: Chrysene-d12	96.4	0	50-200	0		%REC	10	08/10/16 01:43 AM
IS: Naphthalene-d8	119	0	50-200	0		%REC	10	08/10/16 01:43 AM
IS: Perylene-d12	106	0	50-200	0		%REC	10	08/10/16 01:43 AM
IS: Phenanthrene-d10	94.6	0	50-200	0		%REC	10	08/10/16 01:43 AM
Surr: 2-Fluorobiphenyl	84.9	0	46-115	0		%REC	10	08/10/16 01:43 AM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU009(4-6)-B
Project:	Laredo SGR	**Lab ID:**	1607337-07
Project No:	04285081.0000.00044	**Collection Date:**	07/28/16 09:46 AM
Lab Order:	1607337	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	79.0	0	58-133	0		%REC	10	08/10/16 01:43 AM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU009(6-8)-B
Project:	Laredo SGR	**Lab ID:**	1607337-08
Project No:	04285081.0000.00044	**Collection Date:**	07/28/16 09:47 AM
Lab Order:	1607337	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **CVD**
Lead	8.21	0.0971	0.291	0.146		mg/Kg-dry	5	08/11/16 03:16 AM
IS: Bismuth	52.6	0	30-120	0		%REC	5	08/11/16 03:16 AM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0736	0.0491	0.0981	0.0736	U	mg/Kg-dry	10	08/10/16 02:23 AM
Acenaphthylene	0.0736	0.0491	0.0981	0.0736	U	mg/Kg-dry	10	08/10/16 02:23 AM
Anthracene	0.0736	0.0491	0.0981	0.0736	U	mg/Kg-dry	10	08/10/16 02:23 AM
Benzo[a]anthracene	0.0736	0.0491	0.0981	0.0736	U	mg/Kg-dry	10	08/10/16 02:23 AM
Benzo[a]pyrene	0.0736	0.0491	0.0981	0.0736	U	mg/Kg-dry	10	08/10/16 02:23 AM
Benzo[b]fluoranthene	0.0736	0.0491	0.0981	0.0736	U	mg/Kg-dry	10	08/10/16 02:23 AM
Benzo[e]pyrene	0.0736	0.0491	0.0981	0.0736	U	mg/Kg-dry	10	08/10/16 02:23 AM
Benzo[g,h,i]perylene	0.0736	0.0491	0.0981	0.0736	U	mg/Kg-dry	10	08/10/16 02:23 AM
Benzo[j]fluoranthene	0.0736	0.0491	0.0981	0.0736	NU	mg/Kg-dry	10	08/10/16 02:23 AM
Benzo[k]fluoranthene	0.0736	0.0491	0.0981	0.0736	U	mg/Kg-dry	10	08/10/16 02:23 AM
Chrysene	0.0736	0.0491	0.0981	0.0736	U	mg/Kg-dry	10	08/10/16 02:23 AM
Dibenz[a,h]anthracene	0.0736	0.0491	0.0981	0.0736	U	mg/Kg-dry	10	08/10/16 02:23 AM
Fluoranthene	0.0736	0.0491	0.0981	0.0736	U	mg/Kg-dry	10	08/10/16 02:23 AM
Fluorene	0.0736	0.0491	0.0981	0.0736	U	mg/Kg-dry	10	08/10/16 02:23 AM
Indeno[1,2,3-cd]pyrene	0.0736	0.0491	0.0981	0.0736	U	mg/Kg-dry	10	08/10/16 02:23 AM
Phenanthrene	0.0736	0.0491	0.0981	0.0736	U	mg/Kg-dry	10	08/10/16 02:23 AM
Pyrene	0.0736	0.0491	0.0981	0.0736	U	mg/Kg-dry	10	08/10/16 02:23 AM
IS: Acenaphthene-d10	144	0	50-200	0		%REC	10	08/10/16 02:23 AM
IS: Chrysene-d12	96.0	0	50-200	0		%REC	10	08/10/16 02:23 AM
IS: Naphthalene-d8	119	0	50-200	0		%REC	10	08/10/16 02:23 AM
IS: Perylene-d12	105	0	50-200	0		%REC	10	08/10/16 02:23 AM
IS: Phenanthrene-d10	94.7	0	50-200	0		%REC	10	08/10/16 02:23 AM
Surr: 2-Fluorobiphenyl	83.5	0	46-115	0		%REC	10	08/10/16 02:23 AM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU009(6-8)-B
Project:	Laredo SGR	**Lab ID:**	1607337-08
Project No:	04285081.0000.00044	**Collection Date:**	07/28/16 09:47 AM
Lab Order:	1607337	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	75.4	0	58-133	0		%REC	10	08/10/16 02:23 AM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU009(0-2)-C
Project:	Laredo SGR	**Lab ID:**	1607337-09
Project No:	04285081.0000.00044	**Collection Date:**	07/28/16 09:49 AM
Lab Order:	1607337	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **CVD**
Lead	16.3	0.0877	0.263	0.132		mg/Kg-dry	5	08/11/16 03:22 AM
IS: Bismuth	53.3	0	30-120	0		%REC	5	08/11/16 03:22 AM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0738	0.0492	0.0984	0.0738	U	mg/Kg-dry	10	08/10/16 09:15 AM
Acenaphthylene	0.0738	0.0492	0.0984	0.0738	U	mg/Kg-dry	10	08/10/16 09:15 AM
Anthracene	0.0611	0.0492	0.0984	0.0738	J	mg/Kg-dry	10	08/10/16 09:15 AM
Benzo[a]anthracene	0.624	0.0492	0.0984	0.0738		mg/Kg-dry	10	08/10/16 09:15 AM
Benzo[a]pyrene	0.795	0.0492	0.0984	0.0738		mg/Kg-dry	10	08/10/16 09:15 AM
Benzo[b]fluoranthene	0.775	0.0492	0.0984	0.0738		mg/Kg-dry	10	08/10/16 09:15 AM
Benzo[e]pyrene	0.606	0.0492	0.0984	0.0738		mg/Kg-dry	10	08/10/16 09:15 AM
Benzo[g,h,i]perylene	0.606	0.0492	0.0984	0.0738		mg/Kg-dry	10	08/10/16 09:15 AM
Benzo[j]fluoranthene	0.389	0.0492	0.0984	0.0738	N	mg/Kg-dry	10	08/10/16 09:15 AM
Benzo[k]fluoranthene	0.362	0.0492	0.0984	0.0738		mg/Kg-dry	10	08/10/16 09:15 AM
Chrysene	0.780	0.0492	0.0984	0.0738		mg/Kg-dry	10	08/10/16 09:15 AM
Dibenz[a,h]anthracene	0.116	0.0492	0.0984	0.0738		mg/Kg-dry	10	08/10/16 09:15 AM
Fluoranthene	1.07	0.0492	0.0984	0.0738		mg/Kg-dry	10	08/10/16 09:15 AM
Fluorene	0.0738	0.0492	0.0984	0.0738	U	mg/Kg-dry	10	08/10/16 09:15 AM
Indeno[1,2,3-cd]pyrene	0.491	0.0492	0.0984	0.0738		mg/Kg-dry	10	08/10/16 09:15 AM
Phenanthrene	0.381	0.0492	0.0984	0.0738		mg/Kg-dry	10	08/10/16 09:15 AM
Pyrene	0.948	0.0492	0.0984	0.0738		mg/Kg-dry	10	08/10/16 09:15 AM
IS: Acenaphthene-d10	133	0	50-200	0		%REC	10	08/10/16 09:15 AM
IS: Chrysene-d12	103	0	50-200	0		%REC	10	08/10/16 09:15 AM
IS: Naphthalene-d8	121	0	50-200	0		%REC	10	08/10/16 09:15 AM
IS: Perylene-d12	111	0	50-200	0		%REC	10	08/10/16 09:15 AM
IS: Phenanthrene-d10	97.6	0	50-200	0		%REC	10	08/10/16 09:15 AM
Surr: 2-Fluorobiphenyl	75.2	0	46-115	0		%REC	10	08/10/16 09:15 AM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU009(0-2)-C
Project:	Laredo SGR	**Lab ID:**	1607337-09
Project No:	04285081.0000.00044	**Collection Date:**	07/28/16 09:49 AM
Lab Order:	1607337	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	80.4	0	58-133	0		%REC	10	08/10/16 09:15 AM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU009(2-4)-C
Project:	Laredo SGR	**Lab ID:**	1607337-10
Project No:	04285081.0000.00044	**Collection Date:**	07/28/16 09:50 AM
Lab Order:	1607337	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	6.74	0.0935	0.280	0.140		mg/Kg-dry	5	08/11/16 05:10 PM
IS: Bismuth	99.2	0	30-120	0		%REC	5	08/11/16 05:10 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	08/10/16 09:55 AM
Acenaphthylene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	08/10/16 09:55 AM
Anthracene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	08/10/16 09:55 AM
Benzo[a]anthracene	0.640	0.0499	0.0998	0.0749		mg/Kg-dry	10	08/10/16 09:55 AM
Benzo[a]pyrene	0.815	0.0499	0.0998	0.0749		mg/Kg-dry	10	08/10/16 09:55 AM
Benzo[b]fluoranthene	0.698	0.0499	0.0998	0.0749		mg/Kg-dry	10	08/10/16 09:55 AM
Benzo[e]pyrene	0.569	0.0499	0.0998	0.0749		mg/Kg-dry	10	08/10/16 09:55 AM
Benzo[g,h,i]perylene	0.548	0.0499	0.0998	0.0749		mg/Kg-dry	10	08/10/16 09:55 AM
Benzo[j]fluoranthene	0.386	0.0499	0.0998	0.0749	N	mg/Kg-dry	10	08/10/16 09:55 AM
Benzo[k]fluoranthene	0.360	0.0499	0.0998	0.0749		mg/Kg-dry	10	08/10/16 09:55 AM
Chrysene	0.762	0.0499	0.0998	0.0749		mg/Kg-dry	10	08/10/16 09:55 AM
Dibenz[a,h]anthracene	0.0992	0.0499	0.0998	0.0749	J	mg/Kg-dry	10	08/10/16 09:55 AM
Fluoranthene	0.783	0.0499	0.0998	0.0749		mg/Kg-dry	10	08/10/16 09:55 AM
Fluorene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	08/10/16 09:55 AM
Indeno[1,2,3-cd]pyrene	0.450	0.0499	0.0998	0.0749		mg/Kg-dry	10	08/10/16 09:55 AM
Phenanthrene	0.218	0.0499	0.0998	0.0749		mg/Kg-dry	10	08/10/16 09:55 AM
Pyrene	0.739	0.0499	0.0998	0.0749		mg/Kg-dry	10	08/10/16 09:55 AM
IS: Acenaphthene-d10	143	0	50-200	0		%REC	10	08/10/16 09:55 AM
IS: Chrysene-d12	99.9	0	50-200	0		%REC	10	08/10/16 09:55 AM
IS: Naphthalene-d8	124	0	50-200	0		%REC	10	08/10/16 09:55 AM
IS: Perylene-d12	110	0	50-200	0		%REC	10	08/10/16 09:55 AM
IS: Phenanthrene-d10	97.7	0	50-200	0		%REC	10	08/10/16 09:55 AM
Surr: 2-Fluorobiphenyl	79.9	0	46-115	0		%REC	10	08/10/16 09:55 AM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU009(2-4)-C
Project:	Laredo SGR	**Lab ID:**	1607337-10
Project No:	04285081.0000.00044	**Collection Date:**	07/28/16 09:50 AM
Lab Order:	1607337	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	77.8	0	58-133	0		%REC	10	08/10/16 09:55 AM

Qualifiers:	*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
	C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
	E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
	MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
	RL	Reporting Limit	S	Spike Recovery outside control limits
	N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *31-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU009(4-6)-C
Project:	Laredo SGR	**Lab ID:**	1607337-11
Project No:	04285081.0000.00044	**Collection Date:**	07/28/16 09:51 AM
Lab Order:	1607337	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **CVD**
Lead	5.24	0.0943	0.283	0.142		mg/Kg-dry	5	08/11/16 03:28 AM
IS: Bismuth	51.9	0	30-120	0		%REC	5	08/11/16 03:28 AM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	08/10/16 10:35 AM
Acenaphthylene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	08/10/16 10:35 AM
Anthracene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	08/10/16 10:35 AM
Benzo[a]anthracene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	08/10/16 10:35 AM
Benzo[a]pyrene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	08/10/16 10:35 AM
Benzo[b]fluoranthene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	08/10/16 10:35 AM
Benzo[e]pyrene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	08/10/16 10:35 AM
Benzo[g,h,i]perylene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	08/10/16 10:35 AM
Benzo[j]fluoranthene	0.0742	0.0495	0.0989	0.0742	NU	mg/Kg-dry	10	08/10/16 10:35 AM
Benzo[k]fluoranthene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	08/10/16 10:35 AM
Chrysene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	08/10/16 10:35 AM
Dibenz[a,h]anthracene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	08/10/16 10:35 AM
Fluoranthene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	08/10/16 10:35 AM
Fluorene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	08/10/16 10:35 AM
Indeno[1,2,3-cd]pyrene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	08/10/16 10:35 AM
Phenanthrene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	08/10/16 10:35 AM
Pyrene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	08/10/16 10:35 AM
IS: Acenaphthene-d10	134	0	50-200	0		%REC	10	08/10/16 10:35 AM
IS: Chrysene-d12	99.1	0	50-200	0		%REC	10	08/10/16 10:35 AM
IS: Naphthalene-d8	120	0	50-200	0		%REC	10	08/10/16 10:35 AM
IS: Perylene-d12	107	0	50-200	0		%REC	10	08/10/16 10:35 AM
IS: Phenanthrene-d10	94.5	0	50-200	0		%REC	10	08/10/16 10:35 AM
Surr: 2-Fluorobiphenyl	82.5	0	46-115	0		%REC	10	08/10/16 10:35 AM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU009(4-6)-C
Project:	Laredo SGR	**Lab ID:**	1607337-11
Project No:	04285081.0000.00044	**Collection Date:**	07/28/16 09:51 AM
Lab Order:	1607337	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	83.6	0	58-133	0		%REC	10	08/10/16 10:35 AM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *31-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU009(6-8)-C
Project:	Laredo SGR	**Lab ID:**	1607337-12
Project No:	04285081.0000.00044	**Collection Date:**	07/28/16 09:52 AM
Lab Order:	1607337	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **CVD**
Lead	6.21	0.0926	0.278	0.139		mg/Kg-dry	5	08/11/16 03:34 AM
IS: Bismuth	51.8	0	30-120	0		%REC	5	08/11/16 03:34 AM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	08/10/16 11:14 AM
Acenaphthylene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	08/10/16 11:14 AM
Anthracene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	08/10/16 11:14 AM
Benzo[a]anthracene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	08/10/16 11:14 AM
Benzo[a]pyrene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	08/10/16 11:14 AM
Benzo[b]fluoranthene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	08/10/16 11:14 AM
Benzo[e]pyrene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	08/10/16 11:14 AM
Benzo[g,h,i]perylene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	08/10/16 11:14 AM
Benzo[j]fluoranthene	0.0749	0.0499	0.0998	0.0749	NU	mg/Kg-dry	10	08/10/16 11:14 AM
Benzo[k]fluoranthene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	08/10/16 11:14 AM
Chrysene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	08/10/16 11:14 AM
Dibenz[a,h]anthracene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	08/10/16 11:14 AM
Fluoranthene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	08/10/16 11:14 AM
Fluorene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	08/10/16 11:14 AM
Indeno[1,2,3-cd]pyrene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	08/10/16 11:14 AM
Phenanthrene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	08/10/16 11:14 AM
Pyrene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	08/10/16 11:14 AM
IS: Acenaphthene-d10	148	0	50-200	0		%REC	10	08/10/16 11:14 AM
IS: Chrysene-d12	99.2	0	50-200	0		%REC	10	08/10/16 11:14 AM
IS: Naphthalene-d8	122	0	50-200	0		%REC	10	08/10/16 11:14 AM
IS: Perylene-d12	108	0	50-200	0		%REC	10	08/10/16 11:14 AM
IS: Phenanthrene-d10	98.8	0	50-200	0		%REC	10	08/10/16 11:14 AM
Surr: 2-Fluorobiphenyl	81.4	0	46-115	0		%REC	10	08/10/16 11:14 AM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU009(6-8)-C
Project:	Laredo SGR	**Lab ID:**	1607337-12
Project No:	04285081.0000.00044	**Collection Date:**	07/28/16 09:52 AM
Lab Order:	1607337	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	74.1	0	58-133	0		%REC	10	08/10/16 11:14 AM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	EB01(20160728)
Project:	Laredo SGR	**Lab ID:**	1607337-13
Project No:	04285081.0000.00044	**Collection Date:**	07/28/16 10:00 AM
Lab Order:	1607337	**Matrix:**	EQUIP BLANK

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER			**SW6020A**					Analyst: **CVD**
Lead	0.000900	0.000300	0.00100	0.000900	U	mg/L	1	08/10/16 02:28 AM
IS: Bismuth	91.3	0	30-120	0		%REC	1	08/10/16 02:28 AM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Acenaphthene	0.0000791	0.0000494	0.0000989	0.0000791	U	mg/L	1	08/03/16 11:46 PM
Acenaphthylene	0.0000791	0.0000494	0.0000989	0.0000791	U	mg/L	1	08/03/16 11:46 PM
Anthracene	0.0000791	0.0000494	0.0000989	0.0000791	U	mg/L	1	08/03/16 11:46 PM
Benzo[a]anthracene	0.0000791	0.0000494	0.0000989	0.0000791	U	mg/L	1	08/03/16 11:46 PM
Benzo[a]pyrene	0.0000791	0.0000494	0.0000989	0.0000791	U	mg/L	1	08/03/16 11:46 PM
Benzo[b]fluoranthene	0.0000791	0.0000494	0.0000989	0.0000791	U	mg/L	1	08/03/16 11:46 PM
Benzo[e]pyrene	0.0000791	0.0000494	0.0000989	0.0000791	U	mg/L	1	08/03/16 11:46 PM
Benzo[g,h,i]perylene	0.0000791	0.0000494	0.0000989	0.0000791	U	mg/L	1	08/03/16 11:46 PM
Benzo[j]fluoranthene	0.0000791	0.0000494	0.0000989	0.0000791	NU	mg/L	1	08/03/16 11:46 PM
Benzo[k]fluoranthene	0.0000791	0.0000494	0.0000989	0.0000791	U	mg/L	1	08/03/16 11:46 PM
Chrysene	0.0000791	0.0000494	0.0000989	0.0000791	U	mg/L	1	08/03/16 11:46 PM
Dibenz[a,h]anthracene	0.0000791	0.0000494	0.0000989	0.0000791	U	mg/L	1	08/03/16 11:46 PM
Fluoranthene	0.0000791	0.0000494	0.0000989	0.0000791	U	mg/L	1	08/03/16 11:46 PM
Fluorene	0.0000791	0.0000494	0.0000989	0.0000791	U	mg/L	1	08/03/16 11:46 PM
Indeno[1,2,3-cd]pyrene	0.0000791	0.0000494	0.0000989	0.0000791	U	mg/L	1	08/03/16 11:46 PM
Phenanthrene	0.0000791	0.0000494	0.0000989	0.0000791	U	mg/L	1	08/03/16 11:46 PM
Pyrene	0.0000791	0.0000494	0.0000989	0.0000791	U	mg/L	1	08/03/16 11:46 PM
IS: Acenaphthene-d10	98.8	0	50-200	0		%REC	1	08/03/16 11:46 PM
IS: Chrysene-d12	85.8	0	50-200	0		%REC	1	08/03/16 11:46 PM
IS: Naphthalene-d8	92.4	0	50-200	0		%REC	1	08/03/16 11:46 PM
IS: Perylene-d12	87.5	0	50-200	0		%REC	1	08/03/16 11:46 PM
IS: Phenanthrene-d10	99.5	0	50-200	0		%REC	1	08/03/16 11:46 PM
Surr: 2-Fluorobiphenyl	80.3	0	53-106	0		%REC	1	08/03/16 11:46 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	EB01(20160728)
Project:	Laredo SGR	**Lab ID:**	1607337-13
Project No:	04285081.0000.00044	**Collection Date:**	07/28/16 10:00 AM
Lab Order:	1607337	**Matrix:**	EQUIP BLANK

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Surr: 4-Terphenyl-d14	76.0	0	58-132	0		%REC	1	08/03/16 11:46 PM

Qualifiers:	*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
	C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
	E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
	MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
	RL	Reporting Limit	S	Spike Recovery outside control limits
	N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *31-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU105(0-2)-A
Project:	Laredo SGR	**Lab ID:**	1607337-14
Project No:	04285081.0000.00044	**Collection Date:**	07/28/16 12:30 PM
Lab Order:	1607337	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	41.5	0.0909	0.273	0.136		mg/Kg-dry	5	08/11/16 05:14 PM
IS: Bismuth	102	0	30-120	0		%REC	5	08/11/16 05:14 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	08/10/16 11:54 AM
Acenaphthylene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	08/10/16 11:54 AM
Anthracene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	08/10/16 11:54 AM
Benzo[a]anthracene	0.239	0.0495	0.0989	0.0742		mg/Kg-dry	10	08/10/16 11:54 AM
Benzo[a]pyrene	0.321	0.0495	0.0989	0.0742		mg/Kg-dry	10	08/10/16 11:54 AM
Benzo[b]fluoranthene	0.299	0.0495	0.0989	0.0742		mg/Kg-dry	10	08/10/16 11:54 AM
Benzo[e]pyrene	0.250	0.0495	0.0989	0.0742		mg/Kg-dry	10	08/10/16 11:54 AM
Benzo[g,h,i]perylene	0.263	0.0495	0.0989	0.0742		mg/Kg-dry	10	08/10/16 11:54 AM
Benzo[j]fluoranthene	0.152	0.0495	0.0989	0.0742	N	mg/Kg-dry	10	08/10/16 11:54 AM
Benzo[k]fluoranthene	0.152	0.0495	0.0989	0.0742		mg/Kg-dry	10	08/10/16 11:54 AM
Chrysene	0.305	0.0495	0.0989	0.0742		mg/Kg-dry	10	08/10/16 11:54 AM
Dibenz[a,h]anthracene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	08/10/16 11:54 AM
Fluoranthene	0.393	0.0495	0.0989	0.0742		mg/Kg-dry	10	08/10/16 11:54 AM
Fluorene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	08/10/16 11:54 AM
Indeno[1,2,3-cd]pyrene	0.204	0.0495	0.0989	0.0742		mg/Kg-dry	10	08/10/16 11:54 AM
Phenanthrene	0.132	0.0495	0.0989	0.0742		mg/Kg-dry	10	08/10/16 11:54 AM
Pyrene	0.353	0.0495	0.0989	0.0742		mg/Kg-dry	10	08/10/16 11:54 AM
IS: Acenaphthene-d10	141	0	50-200	0		%REC	10	08/10/16 11:54 AM
IS: Chrysene-d12	97.1	0	50-200	0		%REC	10	08/10/16 11:54 AM
IS: Naphthalene-d8	119	0	50-200	0		%REC	10	08/10/16 11:54 AM
IS: Perylene-d12	105	0	50-200	0		%REC	10	08/10/16 11:54 AM
IS: Phenanthrene-d10	96.2	0	50-200	0		%REC	10	08/10/16 11:54 AM
Surr: 2-Fluorobiphenyl	82.8	0	46-115	0		%REC	10	08/10/16 11:54 AM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU105(0-2)-A
Project:	Laredo SGR	**Lab ID:**	1607337-14
Project No:	04285081.0000.00044	**Collection Date:**	07/28/16 12:30 PM
Lab Order:	1607337	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	76.8	0	58-133	0		%REC	10	08/10/16 11:54 AM

Qualifiers:	*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
	C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
	E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
	MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
	RL	Reporting Limit	S	Spike Recovery outside control limits
	N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *31-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU105(2-4)-A
Project:	Laredo SGR	**Lab ID:**	1607337-15
Project No:	04285081.0000.00044	**Collection Date:**	07/28/16 12:32 PM
Lab Order:	1607337	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	21.1	0.0962	0.288	0.144		mg/Kg-dry	5	08/11/16 05:16 PM
IS: Bismuth	98.7	0	30-120	0		%REC	5	08/11/16 05:16 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0724	0.0483	0.0965	0.0724	U	mg/Kg-dry	10	08/10/16 12:34 PM
Acenaphthylene	0.0724	0.0483	0.0965	0.0724	U	mg/Kg-dry	10	08/10/16 12:34 PM
Anthracene	0.0724	0.0483	0.0965	0.0724	U	mg/Kg-dry	10	08/10/16 12:34 PM
Benzo[a]anthracene	0.0724	0.0483	0.0965	0.0724	U	mg/Kg-dry	10	08/10/16 12:34 PM
Benzo[a]pyrene	0.0724	0.0483	0.0965	0.0724	U	mg/Kg-dry	10	08/10/16 12:34 PM
Benzo[b]fluoranthene	0.0724	0.0483	0.0965	0.0724	U	mg/Kg-dry	10	08/10/16 12:34 PM
Benzo[e]pyrene	0.0724	0.0483	0.0965	0.0724	U	mg/Kg-dry	10	08/10/16 12:34 PM
Benzo[g,h,i]perylene	0.0724	0.0483	0.0965	0.0724	U	mg/Kg-dry	10	08/10/16 12:34 PM
Benzo[j]fluoranthene	0.0724	0.0483	0.0965	0.0724	NU	mg/Kg-dry	10	08/10/16 12:34 PM
Benzo[k]fluoranthene	0.0724	0.0483	0.0965	0.0724	U	mg/Kg-dry	10	08/10/16 12:34 PM
Chrysene	0.0724	0.0483	0.0965	0.0724	U	mg/Kg-dry	10	08/10/16 12:34 PM
Dibenz[a,h]anthracene	0.0724	0.0483	0.0965	0.0724	U	mg/Kg-dry	10	08/10/16 12:34 PM
Fluoranthene	0.0724	0.0483	0.0965	0.0724	U	mg/Kg-dry	10	08/10/16 12:34 PM
Fluorene	0.0724	0.0483	0.0965	0.0724	U	mg/Kg-dry	10	08/10/16 12:34 PM
Indeno[1,2,3-cd]pyrene	0.0724	0.0483	0.0965	0.0724	U	mg/Kg-dry	10	08/10/16 12:34 PM
Phenanthrene	0.0724	0.0483	0.0965	0.0724	U	mg/Kg-dry	10	08/10/16 12:34 PM
Pyrene	0.0724	0.0483	0.0965	0.0724	U	mg/Kg-dry	10	08/10/16 12:34 PM
IS: Acenaphthene-d10	142	0	50-200	0		%REC	10	08/10/16 12:34 PM
IS: Chrysene-d12	99.3	0	50-200	0		%REC	10	08/10/16 12:34 PM
IS: Naphthalene-d8	122	0	50-200	0		%REC	10	08/10/16 12:34 PM
IS: Perylene-d12	108	0	50-200	0		%REC	10	08/10/16 12:34 PM
IS: Phenanthrene-d10	96.5	0	50-200	0		%REC	10	08/10/16 12:34 PM
Surr: 2-Fluorobiphenyl	79.3	0	46-115	0		%REC	10	08/10/16 12:34 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU105(2-4)-A
Project:	Laredo SGR	**Lab ID:**	1607337-15
Project No:	04285081.0000.00044	**Collection Date:**	07/28/16 12:32 PM
Lab Order:	1607337	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	77.1	0	58-133	0		%REC	10	08/10/16 12:34 PM

Qualifiers:	*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
	C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
	E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
	MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
	RL	Reporting Limit	S	Spike Recovery outside control limits
	N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *31-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU105(4-6)-A
Project:	Laredo SGR	**Lab ID:**	1607337-16
Project No:	04285081.0000.00044	**Collection Date:**	07/28/16 12:34 PM
Lab Order:	1607337	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	6.31	0.0990	0.297	0.149		mg/Kg-dry	5	08/11/16 05:18 PM
IS: Bismuth	102	0	30-120	0		%REC	5	08/11/16 05:18 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0743	0.0496	0.0991	0.0743	U	mg/Kg-dry	10	08/10/16 01:14 PM
Acenaphthylene	0.0743	0.0496	0.0991	0.0743	U	mg/Kg-dry	10	08/10/16 01:14 PM
Anthracene	0.0743	0.0496	0.0991	0.0743	U	mg/Kg-dry	10	08/10/16 01:14 PM
Benzo[a]anthracene	0.0743	0.0496	0.0991	0.0743	U	mg/Kg-dry	10	08/10/16 01:14 PM
Benzo[a]pyrene	0.0743	0.0496	0.0991	0.0743	U	mg/Kg-dry	10	08/10/16 01:14 PM
Benzo[b]fluoranthene	0.0743	0.0496	0.0991	0.0743	U	mg/Kg-dry	10	08/10/16 01:14 PM
Benzo[e]pyrene	0.0743	0.0496	0.0991	0.0743	U	mg/Kg-dry	10	08/10/16 01:14 PM
Benzo[g,h,i]perylene	0.0743	0.0496	0.0991	0.0743	U	mg/Kg-dry	10	08/10/16 01:14 PM
Benzo[j]fluoranthene	0.0743	0.0496	0.0991	0.0743	NU	mg/Kg-dry	10	08/10/16 01:14 PM
Benzo[k]fluoranthene	0.0743	0.0496	0.0991	0.0743	U	mg/Kg-dry	10	08/10/16 01:14 PM
Chrysene	0.0743	0.0496	0.0991	0.0743	U	mg/Kg-dry	10	08/10/16 01:14 PM
Dibenz[a,h]anthracene	0.0743	0.0496	0.0991	0.0743	U	mg/Kg-dry	10	08/10/16 01:14 PM
Fluoranthene	0.0743	0.0496	0.0991	0.0743	U	mg/Kg-dry	10	08/10/16 01:14 PM
Fluorene	0.0743	0.0496	0.0991	0.0743	U	mg/Kg-dry	10	08/10/16 01:14 PM
Indeno[1,2,3-cd]pyrene	0.0743	0.0496	0.0991	0.0743	U	mg/Kg-dry	10	08/10/16 01:14 PM
Phenanthrene	0.0743	0.0496	0.0991	0.0743	U	mg/Kg-dry	10	08/10/16 01:14 PM
Pyrene	0.0743	0.0496	0.0991	0.0743	U	mg/Kg-dry	10	08/10/16 01:14 PM
IS: Acenaphthene-d10	138	0	50-200	0		%REC	10	08/10/16 01:14 PM
IS: Chrysene-d12	97.7	0	50-200	0		%REC	10	08/10/16 01:14 PM
IS: Naphthalene-d8	117	0	50-200	0		%REC	10	08/10/16 01:14 PM
IS: Perylene-d12	106	0	50-200	0		%REC	10	08/10/16 01:14 PM
IS: Phenanthrene-d10	96.0	0	50-200	0		%REC	10	08/10/16 01:14 PM
Surr: 2-Fluorobiphenyl	81.2	0	46-115	0		%REC	10	08/10/16 01:14 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU105(4-6)-A
Project:	Laredo SGR	**Lab ID:**	1607337-16
Project No:	04285081.0000.00044	**Collection Date:**	07/28/16 12:34 PM
Lab Order:	1607337	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	77.3	0	58-133	0		%REC	10	08/10/16 01:14 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *31-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU105(6-8)-A
Project:	Laredo SGR	**Lab ID:**	1607337-17
Project No:	04285081.0000.00044	**Collection Date:**	07/28/16 12:36 PM
Lab Order:	1607337	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	6.54	0.0962	0.288	0.144		mg/Kg-dry	5	08/11/16 05:20 PM
IS: Bismuth	101	0	30-120	0		%REC	5	08/11/16 05:20 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0730	0.0486	0.0973	0.0730	U	mg/Kg-dry	10	08/10/16 01:54 PM
Acenaphthylene	0.0730	0.0486	0.0973	0.0730	U	mg/Kg-dry	10	08/10/16 01:54 PM
Anthracene	0.0730	0.0486	0.0973	0.0730	U	mg/Kg-dry	10	08/10/16 01:54 PM
Benzo[a]anthracene	0.0730	0.0486	0.0973	0.0730	U	mg/Kg-dry	10	08/10/16 01:54 PM
Benzo[a]pyrene	0.0730	0.0486	0.0973	0.0730	U	mg/Kg-dry	10	08/10/16 01:54 PM
Benzo[b]fluoranthene	0.0730	0.0486	0.0973	0.0730	U	mg/Kg-dry	10	08/10/16 01:54 PM
Benzo[e]pyrene	0.0730	0.0486	0.0973	0.0730	U	mg/Kg-dry	10	08/10/16 01:54 PM
Benzo[g,h,i]perylene	0.0730	0.0486	0.0973	0.0730	U	mg/Kg-dry	10	08/10/16 01:54 PM
Benzo[j]fluoranthene	0.0730	0.0486	0.0973	0.0730	NU	mg/Kg-dry	10	08/10/16 01:54 PM
Benzo[k]fluoranthene	0.0730	0.0486	0.0973	0.0730	U	mg/Kg-dry	10	08/10/16 01:54 PM
Chrysene	0.0730	0.0486	0.0973	0.0730	U	mg/Kg-dry	10	08/10/16 01:54 PM
Dibenz[a,h]anthracene	0.0730	0.0486	0.0973	0.0730	U	mg/Kg-dry	10	08/10/16 01:54 PM
Fluoranthene	0.0730	0.0486	0.0973	0.0730	U	mg/Kg-dry	10	08/10/16 01:54 PM
Fluorene	0.0730	0.0486	0.0973	0.0730	U	mg/Kg-dry	10	08/10/16 01:54 PM
Indeno[1,2,3-cd]pyrene	0.0730	0.0486	0.0973	0.0730	U	mg/Kg-dry	10	08/10/16 01:54 PM
Phenanthrene	0.0730	0.0486	0.0973	0.0730	U	mg/Kg-dry	10	08/10/16 01:54 PM
Pyrene	0.0730	0.0486	0.0973	0.0730	U	mg/Kg-dry	10	08/10/16 01:54 PM
IS: Acenaphthene-d10	142	0	50-200	0		%REC	10	08/10/16 01:54 PM
IS: Chrysene-d12	98.9	0	50-200	0		%REC	10	08/10/16 01:54 PM
IS: Naphthalene-d8	123	0	50-200	0		%REC	10	08/10/16 01:54 PM
IS: Perylene-d12	108	0	50-200	0		%REC	10	08/10/16 01:54 PM
IS: Phenanthrene-d10	95.9	0	50-200	0		%REC	10	08/10/16 01:54 PM
Surr: 2-Fluorobiphenyl	83.2	0	46-115	0		%REC	10	08/10/16 01:54 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU105(6-8)-A
Project:	Laredo SGR	**Lab ID:**	1607337-17
Project No:	04285081.0000.00044	**Collection Date:**	07/28/16 12:36 PM
Lab Order:	1607337	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	81.5	0	58-133	0		%REC	10	08/10/16 01:54 PM

Qualifiers:	*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
	C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
	E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
	MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
	RL	Reporting Limit	S	Spike Recovery outside control limits
	N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU105(0-2)-B
Project:	Laredo SGR	**Lab ID:**	1607337-18
Project No:	04285081.0000.00044	**Collection Date:**	07/28/16 12:40 PM
Lab Order:	1607337	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	73.6	0.0971	0.291	0.146		mg/Kg-dry	5	08/11/16 05:22 PM
IS: Bismuth	101	0	30-120	0		%REC	5	08/11/16 05:22 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0737	0.0491	0.0982	0.0737	U	mg/Kg-dry	10	08/10/16 02:34 PM
Acenaphthylene	0.0737	0.0491	0.0982	0.0737	U	mg/Kg-dry	10	08/10/16 02:34 PM
Anthracene	0.0566	0.0491	0.0982	0.0737	J	mg/Kg-dry	10	08/10/16 02:34 PM
Benzo[a]anthracene	0.727	0.0491	0.0982	0.0737		mg/Kg-dry	10	08/10/16 02:34 PM
Benzo[a]pyrene	1.05	0.0491	0.0982	0.0737		mg/Kg-dry	10	08/10/16 02:34 PM
Benzo[b]fluoranthene	0.941	0.0491	0.0982	0.0737		mg/Kg-dry	10	08/10/16 02:34 PM
Benzo[e]pyrene	0.768	0.0491	0.0982	0.0737		mg/Kg-dry	10	08/10/16 02:34 PM
Benzo[g,h,i]perylene	0.836	0.0491	0.0982	0.0737		mg/Kg-dry	10	08/10/16 02:34 PM
Benzo[j]fluoranthene	0.474	0.0491	0.0982	0.0737	N	mg/Kg-dry	10	08/10/16 02:34 PM
Benzo[k]fluoranthene	0.454	0.0491	0.0982	0.0737		mg/Kg-dry	10	08/10/16 02:34 PM
Chrysene	0.913	0.0491	0.0982	0.0737		mg/Kg-dry	10	08/10/16 02:34 PM
Dibenz[a,h]anthracene	0.158	0.0491	0.0982	0.0737		mg/Kg-dry	10	08/10/16 02:34 PM
Fluoranthene	1.04	0.0491	0.0982	0.0737		mg/Kg-dry	10	08/10/16 02:34 PM
Fluorene	0.0737	0.0491	0.0982	0.0737	U	mg/Kg-dry	10	08/10/16 02:34 PM
Indeno[1,2,3-cd]pyrene	0.667	0.0491	0.0982	0.0737		mg/Kg-dry	10	08/10/16 02:34 PM
Phenanthrene	0.325	0.0491	0.0982	0.0737		mg/Kg-dry	10	08/10/16 02:34 PM
Pyrene	0.961	0.0491	0.0982	0.0737		mg/Kg-dry	10	08/10/16 02:34 PM
IS: Acenaphthene-d10	146	0	50-200	0		%REC	10	08/10/16 02:34 PM
IS: Chrysene-d12	96.3	0	50-200	0		%REC	10	08/10/16 02:34 PM
IS: Naphthalene-d8	119	0	50-200	0		%REC	10	08/10/16 02:34 PM
IS: Perylene-d12	105	0	50-200	0		%REC	10	08/10/16 02:34 PM
IS: Phenanthrene-d10	97.7	0	50-200	0		%REC	10	08/10/16 02:34 PM
Surr: 2-Fluorobiphenyl	85.6	0	46-115	0		%REC	10	08/10/16 02:34 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU105(0-2)-B
Project:	Laredo SGR	**Lab ID:**	1607337-18
Project No:	04285081.0000.00044	**Collection Date:**	07/28/16 12:40 PM
Lab Order:	1607337	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	75.9	0	58-133	0		%REC	10	08/10/16 02:34 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU105(2-4)-B
Project:	Laredo SGR	**Lab ID:**	1607337-19
Project No:	04285081.0000.00044	**Collection Date:**	07/28/16 12:42 PM
Lab Order:	1607337	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	8.85	0.0971	0.291	0.146		mg/Kg-dry	5	08/11/16 05:24 PM
IS: Bismuth	99.0	0	30-120	0		%REC	5	08/11/16 05:24 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	08/10/16 03:14 PM
Acenaphthylene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	08/10/16 03:14 PM
Anthracene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	08/10/16 03:14 PM
Benzo[a]anthracene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	08/10/16 03:14 PM
Benzo[a]pyrene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	08/10/16 03:14 PM
Benzo[b]fluoranthene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	08/10/16 03:14 PM
Benzo[e]pyrene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	08/10/16 03:14 PM
Benzo[g,h,i]perylene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	08/10/16 03:14 PM
Benzo[j]fluoranthene	0.0742	0.0495	0.0989	0.0742	NU	mg/Kg-dry	10	08/10/16 03:14 PM
Benzo[k]fluoranthene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	08/10/16 03:14 PM
Chrysene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	08/10/16 03:14 PM
Dibenz[a,h]anthracene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	08/10/16 03:14 PM
Fluoranthene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	08/10/16 03:14 PM
Fluorene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	08/10/16 03:14 PM
Indeno[1,2,3-cd]pyrene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	08/10/16 03:14 PM
Phenanthrene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	08/10/16 03:14 PM
Pyrene	0.0742	0.0495	0.0989	0.0742	U	mg/Kg-dry	10	08/10/16 03:14 PM
IS: Acenaphthene-d10	141	0	50-200	0		%REC	10	08/10/16 03:14 PM
IS: Chrysene-d12	102	0	50-200	0		%REC	10	08/10/16 03:14 PM
IS: Naphthalene-d8	121	0	50-200	0		%REC	10	08/10/16 03:14 PM
IS: Perylene-d12	109	0	50-200	0		%REC	10	08/10/16 03:14 PM
IS: Phenanthrene-d10	97.3	0	50-200	0		%REC	10	08/10/16 03:14 PM
Surr: 2-Fluorobiphenyl	80.4	0	46-115	0		%REC	10	08/10/16 03:14 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU105(2-4)-B
Project:	Laredo SGR	**Lab ID:**	1607337-19
Project No:	04285081.0000.00044	**Collection Date:**	07/28/16 12:42 PM
Lab Order:	1607337	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	77.9	0	58-133	0		%REC	10	08/10/16 03:14 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *31-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU105(4-6)-B
Project:	Laredo SGR	**Lab ID:**	1607337-20
Project No:	04285081.0000.00044	**Collection Date:**	07/28/16 12:44 PM
Lab Order:	1607337	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	6.54	0.0935	0.280	0.140		mg/Kg-dry	5	08/11/16 05:26 PM
IS: Bismuth	101	0	30-120	0		%REC	5	08/11/16 05:26 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0710	0.0473	0.0947	0.0710	U	mg/Kg-dry	10	08/10/16 03:55 PM
Acenaphthylene	0.0710	0.0473	0.0947	0.0710	U	mg/Kg-dry	10	08/10/16 03:55 PM
Anthracene	0.0710	0.0473	0.0947	0.0710	U	mg/Kg-dry	10	08/10/16 03:55 PM
Benzo[a]anthracene	0.0710	0.0473	0.0947	0.0710	U	mg/Kg-dry	10	08/10/16 03:55 PM
Benzo[a]pyrene	0.0710	0.0473	0.0947	0.0710	U	mg/Kg-dry	10	08/10/16 03:55 PM
Benzo[b]fluoranthene	0.0710	0.0473	0.0947	0.0710	U	mg/Kg-dry	10	08/10/16 03:55 PM
Benzo[e]pyrene	0.0710	0.0473	0.0947	0.0710	U	mg/Kg-dry	10	08/10/16 03:55 PM
Benzo[g,h,i]perylene	0.0710	0.0473	0.0947	0.0710	U	mg/Kg-dry	10	08/10/16 03:55 PM
Benzo[j]fluoranthene	0.0710	0.0473	0.0947	0.0710	NU	mg/Kg-dry	10	08/10/16 03:55 PM
Benzo[k]fluoranthene	0.0710	0.0473	0.0947	0.0710	U	mg/Kg-dry	10	08/10/16 03:55 PM
Chrysene	0.0710	0.0473	0.0947	0.0710	U	mg/Kg-dry	10	08/10/16 03:55 PM
Dibenz[a,h]anthracene	0.0710	0.0473	0.0947	0.0710	U	mg/Kg-dry	10	08/10/16 03:55 PM
Fluoranthene	0.0710	0.0473	0.0947	0.0710	U	mg/Kg-dry	10	08/10/16 03:55 PM
Fluorene	0.0710	0.0473	0.0947	0.0710	U	mg/Kg-dry	10	08/10/16 03:55 PM
Indeno[1,2,3-cd]pyrene	0.0710	0.0473	0.0947	0.0710	U	mg/Kg-dry	10	08/10/16 03:55 PM
Phenanthrene	0.0710	0.0473	0.0947	0.0710	U	mg/Kg-dry	10	08/10/16 03:55 PM
Pyrene	0.0710	0.0473	0.0947	0.0710	U	mg/Kg-dry	10	08/10/16 03:55 PM
IS: Acenaphthene-d10	142	0	50-200	0		%REC	10	08/10/16 03:55 PM
IS: Chrysene-d12	103	0	50-200	0		%REC	10	08/10/16 03:55 PM
IS: Naphthalene-d8	123	0	50-200	0		%REC	10	08/10/16 03:55 PM
IS: Perylene-d12	113	0	50-200	0		%REC	10	08/10/16 03:55 PM
IS: Phenanthrene-d10	99.1	0	50-200	0		%REC	10	08/10/16 03:55 PM
Surr: 2-Fluorobiphenyl	78.4	0	46-115	0		%REC	10	08/10/16 03:55 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU105(4-6)-B
Project:	Laredo SGR	**Lab ID:**	1607337-20
Project No:	04285081.0000.00044	**Collection Date:**	07/28/16 12:44 PM
Lab Order:	1607337	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	77.4	0	58-133	0		%REC	10	08/10/16 03:55 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *31-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU105(6-8)-B
Project:	Laredo SGR	**Lab ID:**	1607337-21
Project No:	04285081.0000.00044	**Collection Date:**	07/28/16 12:46 PM
Lab Order:	1607337	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	6.29	0.0971	0.291	0.146		mg/Kg-dry	5	08/11/16 05:28 PM
IS: Bismuth	101	0	30-120	0		%REC	5	08/11/16 05:28 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0729	0.0486	0.0972	0.0729	U	mg/Kg-dry	10	08/10/16 04:35 PM
Acenaphthylene	0.0729	0.0486	0.0972	0.0729	U	mg/Kg-dry	10	08/10/16 04:35 PM
Anthracene	0.0729	0.0486	0.0972	0.0729	U	mg/Kg-dry	10	08/10/16 04:35 PM
Benzo[a]anthracene	0.0729	0.0486	0.0972	0.0729	U	mg/Kg-dry	10	08/10/16 04:35 PM
Benzo[a]pyrene	0.0729	0.0486	0.0972	0.0729	U	mg/Kg-dry	10	08/10/16 04:35 PM
Benzo[b]fluoranthene	0.0729	0.0486	0.0972	0.0729	U	mg/Kg-dry	10	08/10/16 04:35 PM
Benzo[e]pyrene	0.0729	0.0486	0.0972	0.0729	U	mg/Kg-dry	10	08/10/16 04:35 PM
Benzo[g,h,i]perylene	0.0729	0.0486	0.0972	0.0729	U	mg/Kg-dry	10	08/10/16 04:35 PM
Benzo[j]fluoranthene	0.0729	0.0486	0.0972	0.0729	NU	mg/Kg-dry	10	08/10/16 04:35 PM
Benzo[k]fluoranthene	0.0729	0.0486	0.0972	0.0729	U	mg/Kg-dry	10	08/10/16 04:35 PM
Chrysene	0.0729	0.0486	0.0972	0.0729	U	mg/Kg-dry	10	08/10/16 04:35 PM
Dibenz[a,h]anthracene	0.0729	0.0486	0.0972	0.0729	U	mg/Kg-dry	10	08/10/16 04:35 PM
Fluoranthene	0.0729	0.0486	0.0972	0.0729	U	mg/Kg-dry	10	08/10/16 04:35 PM
Fluorene	0.0729	0.0486	0.0972	0.0729	U	mg/Kg-dry	10	08/10/16 04:35 PM
Indeno[1,2,3-cd]pyrene	0.0729	0.0486	0.0972	0.0729	U	mg/Kg-dry	10	08/10/16 04:35 PM
Phenanthrene	0.0729	0.0486	0.0972	0.0729	U	mg/Kg-dry	10	08/10/16 04:35 PM
Pyrene	0.0729	0.0486	0.0972	0.0729	U	mg/Kg-dry	10	08/10/16 04:35 PM
IS: Acenaphthene-d10	143	0	50-200	0		%REC	10	08/10/16 04:35 PM
IS: Chrysene-d12	97.2	0	50-200	0		%REC	10	08/10/16 04:35 PM
IS: Naphthalene-d8	120	0	50-200	0		%REC	10	08/10/16 04:35 PM
IS: Perylene-d12	107	0	50-200	0		%REC	10	08/10/16 04:35 PM
IS: Phenanthrene-d10	96.7	0	50-200	0		%REC	10	08/10/16 04:35 PM
Surr: 2-Fluorobiphenyl	77.6	0	46-115	0		%REC	10	08/10/16 04:35 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU105(6-8)-B
Project:	Laredo SGR	**Lab ID:**	1607337-21
Project No:	04285081.0000.00044	**Collection Date:**	07/28/16 12:46 PM
Lab Order:	1607337	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	73.4	0	58-133	0		%REC	10	08/10/16 04:35 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU105(0-2)-C
Project:	Laredo SGR	**Lab ID:**	1607337-22
Project No:	04285081.0000.00044	**Collection Date:**	07/28/16 12:50 PM
Lab Order:	1607337	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	64.9	0.0971	0.291	0.146		mg/Kg-dry	5	08/11/16 05:30 PM
IS: Bismuth	102	0	30-120	0		%REC	5	08/11/16 05:30 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0743	0.0495	0.0990	0.0743	U	mg/Kg-dry	10	08/10/16 07:14 PM
Acenaphthylene	0.0743	0.0495	0.0990	0.0743	U	mg/Kg-dry	10	08/10/16 07:14 PM
Anthracene	0.0913	0.0495	0.0990	0.0743	J	mg/Kg-dry	10	08/10/16 07:14 PM
Benzo[a]anthracene	0.782	0.0495	0.0990	0.0743		mg/Kg-dry	10	08/10/16 07:14 PM
Benzo[a]pyrene	0.954	0.0495	0.0990	0.0743		mg/Kg-dry	10	08/10/16 07:14 PM
Benzo[b]fluoranthene	0.887	0.0495	0.0990	0.0743		mg/Kg-dry	10	08/10/16 07:14 PM
Benzo[e]pyrene	0.714	0.0495	0.0990	0.0743		mg/Kg-dry	10	08/10/16 07:14 PM
Benzo[g,h,i]perylene	0.729	0.0495	0.0990	0.0743		mg/Kg-dry	10	08/10/16 07:14 PM
Benzo[j]fluoranthene	0.439	0.0495	0.0990	0.0743	N	mg/Kg-dry	10	08/10/16 07:14 PM
Benzo[k]fluoranthene	0.426	0.0495	0.0990	0.0743		mg/Kg-dry	10	08/10/16 07:14 PM
Chrysene	0.937	0.0495	0.0990	0.0743		mg/Kg-dry	10	08/10/16 07:14 PM
Dibenz[a,h]anthracene	0.136	0.0495	0.0990	0.0743		mg/Kg-dry	10	08/10/16 07:14 PM
Fluoranthene	1.41	0.0495	0.0990	0.0743		mg/Kg-dry	10	08/10/16 07:14 PM
Fluorene	0.0743	0.0495	0.0990	0.0743	U	mg/Kg-dry	10	08/10/16 07:14 PM
Indeno[1,2,3-cd]pyrene	0.581	0.0495	0.0990	0.0743		mg/Kg-dry	10	08/10/16 07:14 PM
Phenanthrene	0.625	0.0495	0.0990	0.0743		mg/Kg-dry	10	08/10/16 07:14 PM
Pyrene	1.22	0.0495	0.0990	0.0743		mg/Kg-dry	10	08/10/16 07:14 PM
IS: Acenaphthene-d10	143	0	50-200	0		%REC	10	08/10/16 07:14 PM
IS: Chrysene-d12	96.5	0	50-200	0		%REC	10	08/10/16 07:14 PM
IS: Naphthalene-d8	120	0	50-200	0		%REC	10	08/10/16 07:14 PM
IS: Perylene-d12	105	0	50-200	0		%REC	10	08/10/16 07:14 PM
IS: Phenanthrene-d10	95.7	0	50-200	0		%REC	10	08/10/16 07:14 PM
Surr: 2-Fluorobiphenyl	80.4	0	46-115	0		%REC	10	08/10/16 07:14 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU105(0-2)-C
Project:	Laredo SGR	**Lab ID:**	1607337-22
Project No:	04285081.0000.00044	**Collection Date:**	07/28/16 12:50 PM
Lab Order:	1607337	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	73.4	0	58-133	0		%REC	10	08/10/16 07:14 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *31-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU105(2-4)-C
Project:	Laredo SGR	**Lab ID:**	1607337-23
Project No:	04285081.0000.00044	**Collection Date:**	07/28/16 12:52 PM
Lab Order:	1607337	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	13.5	0.0893	0.268	0.134		mg/Kg-dry	5	08/11/16 05:46 PM
IS: Bismuth	100	0	30-120	0		%REC	5	08/11/16 05:46 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0728	0.0485	0.0971	0.0728	U	mg/Kg-dry	10	08/10/16 07:54 PM
Acenaphthylene	0.0728	0.0485	0.0971	0.0728	U	mg/Kg-dry	10	08/10/16 07:54 PM
Anthracene	0.0728	0.0485	0.0971	0.0728	U	mg/Kg-dry	10	08/10/16 07:54 PM
Benzo[a]anthracene	0.0728	0.0485	0.0971	0.0728	U	mg/Kg-dry	10	08/10/16 07:54 PM
Benzo[a]pyrene	0.0728	0.0485	0.0971	0.0728	U	mg/Kg-dry	10	08/10/16 07:54 PM
Benzo[b]fluoranthene	0.0728	0.0485	0.0971	0.0728	U	mg/Kg-dry	10	08/10/16 07:54 PM
Benzo[e]pyrene	0.0728	0.0485	0.0971	0.0728	U	mg/Kg-dry	10	08/10/16 07:54 PM
Benzo[g,h,i]perylene	0.0728	0.0485	0.0971	0.0728	U	mg/Kg-dry	10	08/10/16 07:54 PM
Benzo[j]fluoranthene	0.0728	0.0485	0.0971	0.0728	NU	mg/Kg-dry	10	08/10/16 07:54 PM
Benzo[k]fluoranthene	0.0728	0.0485	0.0971	0.0728	U	mg/Kg-dry	10	08/10/16 07:54 PM
Chrysene	0.0728	0.0485	0.0971	0.0728	U	mg/Kg-dry	10	08/10/16 07:54 PM
Dibenz[a,h]anthracene	0.0728	0.0485	0.0971	0.0728	U	mg/Kg-dry	10	08/10/16 07:54 PM
Fluoranthene	0.0728	0.0485	0.0971	0.0728	U	mg/Kg-dry	10	08/10/16 07:54 PM
Fluorene	0.0728	0.0485	0.0971	0.0728	U	mg/Kg-dry	10	08/10/16 07:54 PM
Indeno[1,2,3-cd]pyrene	0.0728	0.0485	0.0971	0.0728	U	mg/Kg-dry	10	08/10/16 07:54 PM
Phenanthrene	0.0728	0.0485	0.0971	0.0728	U	mg/Kg-dry	10	08/10/16 07:54 PM
Pyrene	0.0728	0.0485	0.0971	0.0728	U	mg/Kg-dry	10	08/10/16 07:54 PM
IS: Acenaphthene-d10	140	0	50-200	0		%REC	10	08/10/16 07:54 PM
IS: Chrysene-d12	98.9	0	50-200	0		%REC	10	08/10/16 07:54 PM
IS: Naphthalene-d8	122	0	50-200	0		%REC	10	08/10/16 07:54 PM
IS: Perylene-d12	107	0	50-200	0		%REC	10	08/10/16 07:54 PM
IS: Phenanthrene-d10	96.6	0	50-200	0		%REC	10	08/10/16 07:54 PM
Surr: 2-Fluorobiphenyl	80.9	0	46-115	0		%REC	10	08/10/16 07:54 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU105(2-4)-C
Project:	Laredo SGR	**Lab ID:**	1607337-23
Project No:	04285081.0000.00044	**Collection Date:**	07/28/16 12:52 PM
Lab Order:	1607337	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	78.1	0	58-133	0		%REC	10	08/10/16 07:54 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *31-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU105(4-6)-C
Project:	Laredo SGR	**Lab ID:**	1607337-24
Project No:	04285081.0000.00044	**Collection Date:**	07/28/16 12:54 PM
Lab Order:	1607337	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	6.49	0.0980	0.294	0.147		mg/Kg-dry	5	08/11/16 05:48 PM
IS: Bismuth	100	0	30-120	0		%REC	5	08/11/16 05:48 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	08/10/16 08:34 PM
Acenaphthylene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	08/10/16 08:34 PM
Anthracene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	08/10/16 08:34 PM
Benzo[a]anthracene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	08/10/16 08:34 PM
Benzo[a]pyrene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	08/10/16 08:34 PM
Benzo[b]fluoranthene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	08/10/16 08:34 PM
Benzo[e]pyrene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	08/10/16 08:34 PM
Benzo[g,h,i]perylene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	08/10/16 08:34 PM
Benzo[j]fluoranthene	0.0749	0.0499	0.0998	0.0749	NU	mg/Kg-dry	10	08/10/16 08:34 PM
Benzo[k]fluoranthene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	08/10/16 08:34 PM
Chrysene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	08/10/16 08:34 PM
Dibenz[a,h]anthracene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	08/10/16 08:34 PM
Fluoranthene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	08/10/16 08:34 PM
Fluorene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	08/10/16 08:34 PM
Indeno[1,2,3-cd]pyrene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	08/10/16 08:34 PM
Phenanthrene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	08/10/16 08:34 PM
Pyrene	0.0749	0.0499	0.0998	0.0749	U	mg/Kg-dry	10	08/10/16 08:34 PM
IS: Acenaphthene-d10	142	0	50-200	0		%REC	10	08/10/16 08:34 PM
IS: Chrysene-d12	97.3	0	50-200	0		%REC	10	08/10/16 08:34 PM
IS: Naphthalene-d8	122	0	50-200	0		%REC	10	08/10/16 08:34 PM
IS: Perylene-d12	106	0	50-200	0		%REC	10	08/10/16 08:34 PM
IS: Phenanthrene-d10	95.1	0	50-200	0		%REC	10	08/10/16 08:34 PM
Surr: 2-Fluorobiphenyl	73.9	0	46-115	0		%REC	10	08/10/16 08:34 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU105(4-6)-C
Project:	Laredo SGR	**Lab ID:**	1607337-24
Project No:	04285081.0000.00044	**Collection Date:**	07/28/16 12:54 PM
Lab Order:	1607337	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	70.4	0	58-133	0		%REC	10	08/10/16 08:34 PM

Qualifiers:	*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
	C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
	E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
	MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
	RL	Reporting Limit	S	Spike Recovery outside control limits
	N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *31-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU105(6-8)-C
Project:	Laredo SGR	**Lab ID:**	1607337-25
Project No:	04285081.0000.00044	**Collection Date:**	07/28/16 12:56 PM
Lab Order:	1607337	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - SOLID			**SW6020A**					Analyst: **RO**
Lead	5.34	0.0980	0.294	0.147		mg/Kg-dry	5	08/11/16 05:50 PM
IS: Bismuth	101	0	30-120	0		%REC	5	08/11/16 05:50 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Acenaphthene	0.0732	0.0488	0.0977	0.0732	U	mg/Kg-dry	10	08/10/16 09:14 PM
Acenaphthylene	0.0732	0.0488	0.0977	0.0732	U	mg/Kg-dry	10	08/10/16 09:14 PM
Anthracene	0.0732	0.0488	0.0977	0.0732	U	mg/Kg-dry	10	08/10/16 09:14 PM
Benzo[a]anthracene	0.0732	0.0488	0.0977	0.0732	U	mg/Kg-dry	10	08/10/16 09:14 PM
Benzo[a]pyrene	0.0732	0.0488	0.0977	0.0732	U	mg/Kg-dry	10	08/10/16 09:14 PM
Benzo[b]fluoranthene	0.0732	0.0488	0.0977	0.0732	U	mg/Kg-dry	10	08/10/16 09:14 PM
Benzo[e]pyrene	0.0732	0.0488	0.0977	0.0732	U	mg/Kg-dry	10	08/10/16 09:14 PM
Benzo[g,h,i]perylene	0.0732	0.0488	0.0977	0.0732	U	mg/Kg-dry	10	08/10/16 09:14 PM
Benzo[j]fluoranthene	0.0732	0.0488	0.0977	0.0732	NU	mg/Kg-dry	10	08/10/16 09:14 PM
Benzo[k]fluoranthene	0.0732	0.0488	0.0977	0.0732	U	mg/Kg-dry	10	08/10/16 09:14 PM
Chrysene	0.0732	0.0488	0.0977	0.0732	U	mg/Kg-dry	10	08/10/16 09:14 PM
Dibenz[a,h]anthracene	0.0732	0.0488	0.0977	0.0732	U	mg/Kg-dry	10	08/10/16 09:14 PM
Fluoranthene	0.0732	0.0488	0.0977	0.0732	U	mg/Kg-dry	10	08/10/16 09:14 PM
Fluorene	0.0732	0.0488	0.0977	0.0732	U	mg/Kg-dry	10	08/10/16 09:14 PM
Indeno[1,2,3-cd]pyrene	0.0732	0.0488	0.0977	0.0732	U	mg/Kg-dry	10	08/10/16 09:14 PM
Phenanthrene	0.0732	0.0488	0.0977	0.0732	U	mg/Kg-dry	10	08/10/16 09:14 PM
Pyrene	0.0732	0.0488	0.0977	0.0732	U	mg/Kg-dry	10	08/10/16 09:14 PM
IS: Acenaphthene-d10	145	0	50-200	0		%REC	10	08/10/16 09:14 PM
IS: Chrysene-d12	95.2	0	50-200	0		%REC	10	08/10/16 09:14 PM
IS: Naphthalene-d8	119	0	50-200	0		%REC	10	08/10/16 09:14 PM
IS: Perylene-d12	103	0	50-200	0		%REC	10	08/10/16 09:14 PM
IS: Phenanthrene-d10	94.9	0	50-200	0		%REC	10	08/10/16 09:14 PM
Surr: 2-Fluorobiphenyl	83.4	0	46-115	0		%REC	10	08/10/16 09:14 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	SGR-DU105(6-8)-C
Project:	Laredo SGR	**Lab ID:**	1607337-25
Project No:	04285081.0000.00044	**Collection Date:**	07/28/16 12:56 PM
Lab Order:	1607337	**Matrix:**	SOIL

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **DEW**
Surr: 4-Terphenyl-d14	75.7	0	58-133	0		%REC	10	08/10/16 09:14 PM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

DHL Analytical, Inc.

Date: *31-Aug-16*

CLIENT:	Arcadis	**Client Sample ID:**	EB02(20160728)
Project:	Laredo SGR	**Lab ID:**	1607337-26
Project No:	04285081.0000.00044	**Collection Date:**	07/28/16 01:00 PM
Lab Order:	1607337	**Matrix:**	EQUIP BLANK

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
TRACE METALS: ICP-MS - WATER			**SW6020A**					Analyst: **CVD**
Lead	0.000900	0.000300	0.00100	0.000900	U	mg/L	1	08/09/16 11:21 PM
IS: Bismuth	86.4	0	30-120	0		%REC	1	08/09/16 11:21 PM
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Acenaphthene	0.0000793	0.0000495	0.0000991	0.0000793	U	mg/L	1	08/04/16 12:26 AM
Acenaphthylene	0.0000793	0.0000495	0.0000991	0.0000793	U	mg/L	1	08/04/16 12:26 AM
Anthracene	0.0000793	0.0000495	0.0000991	0.0000793	U	mg/L	1	08/04/16 12:26 AM
Benzo[a]anthracene	0.0000793	0.0000495	0.0000991	0.0000793	U	mg/L	1	08/04/16 12:26 AM
Benzo[a]pyrene	0.0000793	0.0000495	0.0000991	0.0000793	U	mg/L	1	08/04/16 12:26 AM
Benzo[b]fluoranthene	0.0000793	0.0000495	0.0000991	0.0000793	U	mg/L	1	08/04/16 12:26 AM
Benzo[e]pyrene	0.0000793	0.0000495	0.0000991	0.0000793	U	mg/L	1	08/04/16 12:26 AM
Benzo[g,h,i]perylene	0.0000793	0.0000495	0.0000991	0.0000793	U	mg/L	1	08/04/16 12:26 AM
Benzo[j]fluoranthene	0.0000793	0.0000495	0.0000991	0.0000793	NU	mg/L	1	08/04/16 12:26 AM
Benzo[k]fluoranthene	0.0000793	0.0000495	0.0000991	0.0000793	U	mg/L	1	08/04/16 12:26 AM
Chrysene	0.0000793	0.0000495	0.0000991	0.0000793	U	mg/L	1	08/04/16 12:26 AM
Dibenz[a,h]anthracene	0.0000793	0.0000495	0.0000991	0.0000793	U	mg/L	1	08/04/16 12:26 AM
Fluoranthene	0.0000793	0.0000495	0.0000991	0.0000793	U	mg/L	1	08/04/16 12:26 AM
Fluorene	0.0000793	0.0000495	0.0000991	0.0000793	U	mg/L	1	08/04/16 12:26 AM
Indeno[1,2,3-cd]pyrene	0.0000793	0.0000495	0.0000991	0.0000793	U	mg/L	1	08/04/16 12:26 AM
Phenanthrene	0.0000793	0.0000495	0.0000991	0.0000793	U	mg/L	1	08/04/16 12:26 AM
Pyrene	0.0000793	0.0000495	0.0000991	0.0000793	U	mg/L	1	08/04/16 12:26 AM
IS: Acenaphthene-d10	120	0	50-200	0		%REC	1	08/04/16 12:26 AM
IS: Chrysene-d12	101	0	50-200	0		%REC	1	08/04/16 12:26 AM
IS: Naphthalene-d8	117	0	50-200	0		%REC	1	08/04/16 12:26 AM
IS: Perylene-d12	107	0	50-200	0		%REC	1	08/04/16 12:26 AM
IS: Phenanthrene-d10	112	0	50-200	0		%REC	1	08/04/16 12:26 AM
Surr: 2-Fluorobiphenyl	76.7	0	53-106	0		%REC	1	08/04/16 12:26 AM

Qualifiers:

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

CLIENT:	Arcadis	**Client Sample ID:**	EB02(20160728)
Project:	Laredo SGR	**Lab ID:**	1607337-26
Project No:	04285081.0000.00044	**Collection Date:**	07/28/16 01:00 PM
Lab Order:	1607337	**Matrix:**	EQUIP BLANK

Analyses	Result	DL	RL	LOD	Qual	Units	DF	Date Analyzed
PAHS: GC/MS			**SW8270D-LL**					Analyst: **KL**
Surr: 4-Terphenyl-d14	70.6	0	58-132	0		%REC	1	08/04/16 12:26 AM

Qualifiers:	*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
	C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
	E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
	MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
	RL	Reporting Limit	S	Spike Recovery outside control limits
	N	Parameter not NELAC certified		

CLIENT: Arcadis
Work Order: 1607337
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS3_160729A

Sample ID **DCS1-76274**	Batch ID: **76274**	TestNo: **SW6020A**	Units: **mg/Kg**		
SampType: **DCS**	Run ID: **ICP-MS3_160729A**	Analysis Date: **7/29/2016 1:13:00 PM**	Prep Date: **7/18/2016**		

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.249	0.300	0.2500	0	99.7	80	120	0	0	
IS: Bismuth	50.0		200.0		97.1	70	200	0	0	

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1607337
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS3_160729A

Sample ID **DCS1-76458**	Batch ID: **76458**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **DCS**	Run ID: **ICP-MS3_160729A**	Analysis Date: **7/29/2016 1:50:00 PM**	Prep Date: **7/26/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.000493	0.00100	0.000500	0	98.7	80	120	0	0	

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1607337
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS3_160809B

The QC data in batch 76687 applies to the following samples: 1607337-13A, 1607337-26A

Sample ID	**MB-76687**	Batch ID:	**76687**	TestNo:	**SW6020A**	Units:	**mg/L**
SampType:	**MBLK**	Run ID:	**ICP-MS3_160809B**	Analysis Date:	**8/9/2016 10:57:00 PM**	Prep Date:	**8/5/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.000900	0.00100								U
IS: Bismuth	0.200		0.200		89.9	30	120			

Sample ID	**LCS-76687**	Batch ID:	**76687**	TestNo:	**SW6020A**	Units:	**mg/L**
SampType:	**LCS**	Run ID:	**ICP-MS3_160809B**	Analysis Date:	**8/9/2016 11:03:00 PM**	Prep Date:	**8/5/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.200	0.00100	0.200	0	100	88	115			
IS: Bismuth	0.200		0.200		83.5	30	120			

Sample ID	**LCSD-76687**	Batch ID:	**76687**	TestNo:	**SW6020A**	Units:	**mg/L**
SampType:	**LCSD**	Run ID:	**ICP-MS3_160809B**	Analysis Date:	**8/9/2016 11:09:00 PM**	Prep Date:	**8/5/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.201	0.00100	0.200	0	101	88	115	0.498	20	
IS: Bismuth	0.200		0.200		82.3	30	120	0	0	

Sample ID	**1607337-26A PDS**	Batch ID:	**76687**	TestNo:	**SW6020A**	Units:	**mg/L**
SampType:	**PDS**	Run ID:	**ICP-MS3_160809B**	Analysis Date:	**8/10/2016 12:34:00 AM**	Prep Date:	**8/5/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.193	0.00100	0.200	0	96.6	80	120			
IS: Bismuth	0.200		0.200		84.0	30	120			

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1607337
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS3_160809B

Sample ID **ICV1-160809**	Batch ID: **R87530**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **ICV**	Run ID: **ICP-MS3_160809B**	Analysis Date: **8/9/2016 1:42:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.0966	0.00100	0.100	0	96.6	90	110			
IS: Bismuth	0.200		0.200		89.0	30	120			

Sample ID **ILCVL-160809**	Batch ID: **R87530**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **LCVL**	Run ID: **ICP-MS3_160809B**	Analysis Date: **8/9/2016 1:54:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.00106	0.00100	0.00100	0	106	80	120			
IS: Bismuth	0.200		0.200		88.8	30	120			

Sample ID **CCV5-160809**	Batch ID: **R87530**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **CCV**	Run ID: **ICP-MS3_160809B**	Analysis Date: **8/9/2016 10:34:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.203	0.00100	0.200	0	102	90	110			
IS: Bismuth	0.200		0.200		83.9	30	120			

Sample ID **LCVL5-160809**	Batch ID: **R87530**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **LCVL**	Run ID: **ICP-MS3_160809B**	Analysis Date: **8/9/2016 10:45:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.00107	0.00100	0.00100	0	107	80	120			
IS: Bismuth	0.200		0.200		86.9	30	120			

Sample ID **CCV6-160809**	Batch ID: **R87530**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **CCV**	Run ID: **ICP-MS3_160809B**	Analysis Date: **8/10/2016 12:40:00 AM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.199	0.00100	0.200	0	99.5	90	110			
IS: Bismuth	0.200		0.200		82.3	30	120			

Sample ID **LCVL6-160809**	Batch ID: **R87530**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **LCVL**	Run ID: **ICP-MS3_160809B**	Analysis Date: **8/10/2016 12:52:00 AM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.00104	0.00100	0.00100	0	104	80	120			
IS: Bismuth	0.200		0.200		86.6	30	120			

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1607337
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS3_160809B

Sample ID **CCV7-160809**	Batch ID: **R87530**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **CCV**	Run ID: **ICP-MS3_160809B**	Analysis Date: **8/10/2016 2:34:00 AM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.201	0.00100	0.200	0	101	90	110			
IS: Bismuth	0.200		0.200		82.3	30	120			

Sample ID **LCVL7-160809**	Batch ID: **R87530**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **LCVL**	Run ID: **ICP-MS3_160809B**	Analysis Date: **8/10/2016 2:46:00 AM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.00105	0.00100	0.00100	0	105	80	120			
IS: Bismuth	0.200		0.200		86.2	30	120			

Qualifiers:

B	Analyte detected in the associated Method Blank
J	Analyte detected between MDL and RL
ND	Not Detected at the Method Detection Limit
RL	Reporting Limit
J	Analyte detected between SDL and RL
DF	Dilution Factor
MDL	Method Detection Limit
R	RPD outside accepted control limits
S	Spike Recovery outside control limits
N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1607337
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS3_160810B

The QC data in batch 76717 applies to the following samples: 1607337-01A, 1607337-02A, 1607337-03A, 1607337-04A, 1607337-05A, 1607337-06A, 1607337-07A, 1607337-08A, 1607337-09A, 1607337-11A, 1607337-12A

Sample ID **MB-76717**	Batch ID: **76717**	TestNo: **SW6020A**	Units: **mg/Kg-dry**
SampType: **MBLK**	Run ID: **ICP-MS3_160810B**	Analysis Date: **8/10/2016 11:52:00 PM**	Prep Date: **8/8/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.150	0.300								U
IS: Bismuth	50.0		200.0		65.0	30	120			

Sample ID **LCS-76717**	Batch ID: **76717**	TestNo: **SW6020A**	Units: **mg/Kg-dry**
SampType: **LCS**	Run ID: **ICP-MS3_160810B**	Analysis Date: **8/10/2016 11:58:00 PM**	Prep Date: **8/8/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	49.7	0.300	50.00	0	99.4	84	118			
IS: Bismuth	50.0		200.0		64.6	30	120			

Sample ID **LCSD-76717**	Batch ID: **76717**	TestNo: **SW6020A**	Units: **mg/Kg-dry**
SampType: **LCSD**	Run ID: **ICP-MS3_160810B**	Analysis Date: **8/11/2016 12:04:00 AM**	Prep Date: **8/8/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	50.3	0.300	50.00	0	101	84	118	1.20	20	
IS: Bismuth	50.0		200.0		62.3	30	120	0	0	

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS3_160810B

Sample ID **ICV1-160810**	Batch ID: **R87549**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **ICV**	Run ID: **ICP-MS3_160810B**	Analysis Date: **8/10/2016 12:47:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.0975	0.00100	0.100	0	97.5	90	110			
IS: Bismuth	0.200		0.200		93.1	30	120			

Sample ID **ICV1-160810**	Batch ID: **R87549**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **ICV**	Run ID: **ICP-MS3_160810B**	Analysis Date: **8/10/2016 12:59:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.0977	0.00100	0.100	0	97.7	90	110			
IS: Bismuth	0.200		0.200		91.1	30	120			

Sample ID **ILCVL-160810**	Batch ID: **R87549**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **LCVL**	Run ID: **ICP-MS3_160810B**	Analysis Date: **8/10/2016 1:05:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.00110	0.00100	0.00100	0	110	80	120			
IS: Bismuth	0.200		0.200		91.5	30	120			

Sample ID **CCV5-160810**	Batch ID: **R87549**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **CCV**	Run ID: **ICP-MS3_160810B**	Analysis Date: **8/10/2016 11:28:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.202	0.00100	0.200	0	101	90	110			
IS: Bismuth	0.200		0.200		75.5	30	120			

Sample ID **LCVL5-160810**	Batch ID: **R87549**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **LCVL**	Run ID: **ICP-MS3_160810B**	Analysis Date: **8/10/2016 11:40:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.00101	0.00100	0.00100	0	101	80	120			
IS: Bismuth	0.200		0.200		70.3	30	120			

Sample ID **CCV6-160810**	Batch ID: **R87549**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **CCV**	Run ID: **ICP-MS3_160810B**	Analysis Date: **8/11/2016 2:10:00 AM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.202	0.00100	0.200	0	101	90	110			
IS: Bismuth	0.200		0.200		59.0	30	120			

CLIENT: Arcadis
Work Order: 1607337
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS3_160810B

Sample ID **LCVL-160810**	Batch ID: **R87549**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **LCVL**	Run ID: **ICP-MS3_160810B**	Analysis Date: **8/11/2016 2:22:00 AM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.00112	0.00100	0.00100	0	112	80	120			
IS: Bismuth	0.200		0.200		61.2	30	120			

Sample ID **CCV7-160810**	Batch ID: **R87549**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **CCV**	Run ID: **ICP-MS3_160810B**	Analysis Date: **8/11/2016 3:40:00 AM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.197	0.00100	0.200	0	98.7	90	110			
IS: Bismuth	0.200		0.200		51.4	30	120			

Sample ID **LCVL7-160810**	Batch ID: **R87549**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **LCVL**	Run ID: **ICP-MS3_160810B**	Analysis Date: **8/11/2016 3:52:00 AM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.00109	0.00100	0.00100	0	109	80	120			
IS: Bismuth	0.200		0.200		49.7	30	120			

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1607337
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS4_160725C

Sample ID **DCS1-76312**	Batch ID: **76312**	TestNo: **SW6020A**	Units: **mg/Kg**
SampType: **DCS**	Run ID: **ICP-MS4_160725C**	Analysis Date: **7/25/2016 4:17:00 PM**	Prep Date: **7/20/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.236	0.300	0.2500	0	94.4	80	120	0	0	

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1607337
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS4_160811D

The QC data in batch 76717 applies to the following samples: 1607337-01A, 1607337-02A, 1607337-03A, 1607337-04A, 1607337-05A, 1607337-06A, 1607337-07A, 1607337-08A, 1607337-09A, 1607337-11A, 1607337-12A

Sample ID **1607317-27A SD**	Batch ID: **76717**	TestNo: **SW6020A**	Units: **mg/Kg-dry**
SampType: **SD**	Run ID: **ICP-MS4_160811D**	Analysis Date: **8/11/2016 4:26:00 PM**	Prep Date: **8/8/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	49.1	1.43	0	47.40				3.62	10	
IS: Bismuth	238		190.5		104	30	120	0	0	

Sample ID **1607317-27A PDS**	Batch ID: **76717**	TestNo: **SW6020A**	Units: **mg/Kg-dry**
SampType: **PDS**	Run ID: **ICP-MS4_160811D**	Analysis Date: **8/11/2016 4:28:00 PM**	Prep Date: **8/8/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	95.8	0.286	47.62	47.40	102	80	120			
IS: Bismuth	47.6		952.4		103	30	120			

Sample ID **1607317-27A MS**	Batch ID: **76717**	TestNo: **SW6020A**	Units: **mg/Kg-dry**
SampType: **MS**	Run ID: **ICP-MS4_160811D**	Analysis Date: **8/11/2016 4:30:00 PM**	Prep Date: **8/8/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	162	0.273	45.45	47.40	252	84	118			S
IS: Bismuth	45.5		181.8		102	30	120			

Sample ID **1607317-27A MSD**	Batch ID: **76717**	TestNo: **SW6020A**	Units: **mg/Kg-dry**
SampType: **MSD**	Run ID: **ICP-MS4_160811D**	Analysis Date: **8/11/2016 4:32:00 PM**	Prep Date: **8/8/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	152	0.283	47.17	47.40	222	84	118	6.29	20	S
IS: Bismuth	47.2		188.7		101	30	120	0	0	

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1607337
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS4_160811D

The QC data in batch 76748 applies to the following samples: 1607337-10A, 1607337-14A, 1607337-15A, 1607337-16A, 1607337-17A, 1607337-18A, 1607337-19A, 1607337-20A, 1607337-21A, 1607337-22A, 1607337-23A, 1607337-24A, 1607337-25A

Sample ID **MB-76748** Batch ID: **76748** TestNo: **SW6020A** Units: **mg/Kg-dry**
SampType: **MBLK** Run ID: **ICP-MS4_160811D** Analysis Date: **8/11/2016 5:02:00 PM** Prep Date: **8/10/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.150	0.300								U
IS: Bismuth	50.0		200.0		107	30	120			

Sample ID **LCS-76748** Batch ID: **76748** TestNo: **SW6020A** Units: **mg/Kg-dry**
SampType: **LCS** Run ID: **ICP-MS4_160811D** Analysis Date: **8/11/2016 5:04:00 PM** Prep Date: **8/10/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	51.3	0.300	50.00	0	103	84	118			
IS: Bismuth	50.0		200.0		105	30	120			

Sample ID **LCSD-76748** Batch ID: **76748** TestNo: **SW6020A** Units: **mg/Kg-dry**
SampType: **LCSD** Run ID: **ICP-MS4_160811D** Analysis Date: **8/11/2016 5:06:00 PM** Prep Date: **8/10/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	51.2	0.300	50.00	0	102	84	118	0.159	20	
IS: Bismuth	50.0		200.0		104	30	120	0	0	

Sample ID **1607337-10A SD** Batch ID: **76748** TestNo: **SW6020A** Units: **mg/Kg-dry**
SampType: **SD** Run ID: **ICP-MS4_160811D** Analysis Date: **8/11/2016 5:12:00 PM** Prep Date: **8/10/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	6.63	1.40	0	6.742				1.70	10	
IS: Bismuth	234		186.9		106	30	120	0	0	

Sample ID **1607337-10A PDS** Batch ID: **76748** TestNo: **SW6020A** Units: **mg/Kg-dry**
SampType: **PDS** Run ID: **ICP-MS4_160811D** Analysis Date: **8/11/2016 5:32:00 PM** Prep Date: **8/10/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	53.1	0.280	46.73	6.742	99.2	80	120			
IS: Bismuth	46.7		934.6		101	30	120			

Sample ID **1607337-10A MS** Batch ID: **76748** TestNo: **SW6020A** Units: **mg/Kg-dry**
SampType: **MS** Run ID: **ICP-MS4_160811D** Analysis Date: **8/11/2016 5:34:00 PM** Prep Date: **8/10/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	55.3	0.283	47.17	6.742	103	84	118			
IS: Bismuth	47.2		188.7		98.6	30	120			

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1607337
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS4_160811D

Sample ID **1607337-10A MSD**	Batch ID: **76748**	TestNo: **SW6020A**	Units: **mg/Kg-dry**		
SampType: **MSD**	Run ID: **ICP-MS4_160811D**	Analysis Date: **8/11/2016 5:36:00 PM**	Prep Date: **8/10/2016**		

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	55.2	0.280	46.73	6.742	104	84	118	0.233	20	
IS: Bismuth	46.7		186.9		99.1	30	120	0	0	

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS4_160811D

Sample ID **ICV-160811**	Batch ID: **R87573**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **ICV**	Run ID: **ICP-MS4_160811D**	Analysis Date: **8/11/2016 2:20:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.103	0.00100	0.100	0	103	90	110			
IS: Bismuth	0.200		0.200		100	30	120			

Sample ID **LCVL-160811**	Batch ID: **R87573**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **LCVL**	Run ID: **ICP-MS4_160811D**	Analysis Date: **8/11/2016 2:25:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.00110	0.00100	0.00100	0	110	80	120			
IS: Bismuth	0.200		0.200		102	30	120			

Sample ID **CCV2-160811**	Batch ID: **R87573**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **CCV**	Run ID: **ICP-MS4_160811D**	Analysis Date: **8/11/2016 3:57:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.207	0.00100	0.200	0	104	90	110			
IS: Bismuth	0.200		0.200		105	30	120			

Sample ID **LCVL2-160811**	Batch ID: **R87573**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **LCVL**	Run ID: **ICP-MS4_160811D**	Analysis Date: **8/11/2016 4:08:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.00108	0.00100	0.00100	0	108	80	120			
IS: Bismuth	0.200		0.200		103	30	120			

Sample ID **CCV3-160811**	Batch ID: **R87573**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **CCV**	Run ID: **ICP-MS4_160811D**	Analysis Date: **8/11/2016 4:34:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.208	0.00100	0.200	0	104	90	110			
IS: Bismuth	0.200		0.200		103	30	120			

Sample ID **LCVL3-160811**	Batch ID: **R87573**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **LCVL**	Run ID: **ICP-MS4_160811D**	Analysis Date: **8/11/2016 4:44:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.00111	0.00100	0.00100	0	111	80	120			
IS: Bismuth	0.200		0.200		104	30	120			

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1607337
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: ICP-MS4_160811D

Sample ID **CCV4-160811**	Batch ID: **R87573**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **CCV**	Run ID: **ICP-MS4_160811D**	Analysis Date: **8/11/2016 4:52:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.210	0.00100	0.200	0	105	90	110			
IS: Bismuth	0.200		0.200		103	30	120			

Sample ID **LCVL4-160811**	Batch ID: **R87573**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **LCVL**	Run ID: **ICP-MS4_160811D**	Analysis Date: **8/11/2016 4:58:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.00109	0.00100	0.00100	0	109	80	120			
IS: Bismuth	0.200		0.200		104	30	120			

Sample ID **CCV5-160811**	Batch ID: **R87573**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **CCV**	Run ID: **ICP-MS4_160811D**	Analysis Date: **8/11/2016 5:38:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.210	0.00100	0.200	0	105	90	110			
IS: Bismuth	0.200		0.200		103	30	120			

Sample ID **LCVL5-160811**	Batch ID: **R87573**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **LCVL**	Run ID: **ICP-MS4_160811D**	Analysis Date: **8/11/2016 5:42:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.00112	0.00100	0.00100	0	112	80	120			
IS: Bismuth	0.200		0.200		105	30	120			

Sample ID **CCV6-160811**	Batch ID: **R87573**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **CCV**	Run ID: **ICP-MS4_160811D**	Analysis Date: **8/11/2016 6:04:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.211	0.00100	0.200	0	105	90	110			
IS: Bismuth	0.200		0.200		100	30	120			

Sample ID **LCVL6-160811**	Batch ID: **R87573**	TestNo: **SW6020A**	Units: **mg/L**
SampType: **LCVL**	Run ID: **ICP-MS4_160811D**	Analysis Date: **8/11/2016 6:08:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.00111	0.00100	0.00100	0	111	80	120			
IS: Bismuth	0.200		0.200		102	30	120			

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1607337
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: GCMS8_160518A

Sample ID **DCS-75209**	Batch ID: **75209**	TestNo: **SW8270D-LL**	Units: **mg/L**
SampType: **DCS**	Run ID: **GCMS8_160518A**	Analysis Date: **5/18/2016 10:22:00 AM**	Prep Date: **5/17/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.0000307	0.0000500	0.0000400	0	76.8	20	170	0	0	
Acenaphthylene	0.0000308	0.0000500	0.0000400	0	77.0	20	170	0	0	
Anthracene	0.0000322	0.0000500	0.0000400	0	80.5	20	170	0	0	
Benzo[a]anthracene	0.0000306	0.0000500	0.0000400	0	76.4	20	170	0	0	
Benzo[a]pyrene	0.0000288	0.0000500	0.0000400	0	72.0	20	170	0	0	
Benzo[b]fluoranthene	0.0000304	0.0000500	0.0000400	0	76.0	20	170	0	0	
Benzo[e]pyrene	0.0000308	0.0000500	0.0000400	0	76.9	20	170	0	0	
Benzo[g,h,i]perylene	0.0000282	0.0000500	0.0000400	0	70.4	20	170	0	0	
Benzo[j]fluoranthene	0.0000254	0.0000500	0.0000400	0	63.6	20	170	0	0	N
Benzo[k]fluoranthene	0.0000283	0.0000500	0.0000400	0	70.8	20	170	0	0	
Chrysene	0.0000293	0.0000500	0.0000400	0	73.4	20	170	0	0	
Dibenz[a,h]anthracene	0.0000221	0.0000500	0.0000400	0	55.2	20	170	0	0	
Fluoranthene	0.0000331	0.0000500	0.0000400	0	82.7	20	170	0	0	
Fluorene	0.0000302	0.0000500	0.0000400	0	75.4	20	170	0	0	
Indeno[1,2,3-cd]pyrene	0.0000275	0.0000500	0.0000400	0	68.8	20	170	0	0	
Phenanthrene	0.0000339	0.0000500	0.0000400	0	84.6	20	170	0	0	
Pyrene	0.0000328	0.0000500	0.0000400	0	81.9	20	170	0	0	

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1607337
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: GCMS8_160803B

The QC data in batch 76564 applies to the following samples: 1607337-13B, 1607337-26B

Sample ID **LCS-76564** Batch ID: **76564** TestNo: **SW8270D-LL** Units: **mg/L**
SampType: **LCS** Run ID: **GCMS8_160803B** Analysis Date: **8/3/2016 9:49:00 AM** Prep Date: **7/29/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.00233	0.0000500	0.00400	0	58.2	48	114			
Acenaphthylene	0.00240	0.0000500	0.00400	0	59.9	35	121			
Anthracene	0.00241	0.0000500	0.00400	0	60.2	53	119			
Benzo[a]anthracene	0.00275	0.0000500	0.00400	0	68.9	59	120			
Benzo[a]pyrene	0.00278	0.0000500	0.00400	0	69.4	53	120			
Benzo[b]fluoranthene	0.00274	0.0000500	0.00400	0	68.4	53	126			
Benzo[e]pyrene	0.00273	0.0000500	0.00400	0	68.3	40	140			
Benzo[g,h,i]perylene	0.00273	0.0000500	0.00400	0	68.3	44	128			
Benzo[j]fluoranthene	0.00287	0.0000500	0.00400	0	71.7	45	124			N
Benzo[k]fluoranthene	0.00295	0.0000500	0.00400	0	73.8	54	125			
Chrysene	0.00264	0.0000500	0.00400	0	66.0	57	120			
Dibenz[a,h]anthracene	0.00280	0.0000500	0.00400	0	70.0	44	131			
Fluoranthene	0.00241	0.0000500	0.00400	0	60.4	58	120			
Fluorene	0.00257	0.0000500	0.00400	0	64.1	50	118			
Indeno[1,2,3-cd]pyrene	0.00284	0.0000500	0.00400	0	70.9	48	130			
Phenanthrene	0.00245	0.0000500	0.00400	0	61.3	53	115			
Pyrene	0.00237	0.0000500	0.00400	0	59.3	53	121			
IS: Acenaphthene-d10	0.00800		0.00800		98.9	50	200			
IS: Chrysene-d12	0.00800		0.00800		92.2	50	200			
IS: Naphthalene-d8	0.00800		0.00800		94.0	50	200			
IS: Perylene-d12	0.00800		0.00800		92.4	50	200			
IS: Phenanthrene-d10	0.00800		0.00800		103	50	200			
Surr: 2-Fluorobiphenyl	5.26		8.000		65.7	53	106			
Surr: 4-Terphenyl-d14	5.06		8.000		63.2	58	132			

Sample ID **MB-76564** Batch ID: **76564** TestNo: **SW8270D-LL** Units: **mg/L**
SampType: **MBLK** Run ID: **GCMS8_160803B** Analysis Date: **8/3/2016 11:08:00 AM** Prep Date: **7/29/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.0000400	0.0000500								U
Acenaphthylene	0.0000400	0.0000500								U
Anthracene	0.0000400	0.0000500								U
Benzo[a]anthracene	0.0000400	0.0000500								U
Benzo[a]pyrene	0.0000400	0.0000500								U
Benzo[b]fluoranthene	0.0000400	0.0000500								U
Benzo[e]pyrene	0.0000400	0.0000500								U
Benzo[g,h,i]perylene	0.0000400	0.0000500								U
Benzo[j]fluoranthene	0.0000400	0.0000500								NU
Benzo[k]fluoranthene	0.0000400	0.0000500								U
Chrysene	0.0000400	0.0000500								U

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1607337
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: GCMS8_160803B

Sample ID **MB-76564**	Batch ID: **76564**	TestNo: **SW8270D-LL**	Units: **mg/L**
SampType: **MBLK**	Run ID: **GCMS8_160803B**	Analysis Date: **8/3/2016 11:08:00 AM**	Prep Date: **7/29/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Dibenz[a,h]anthracene	0.0000400	0.0000500								U
Fluoranthene	0.0000400	0.0000500								U
Fluorene	0.0000400	0.0000500								U
Indeno[1,2,3-cd]pyrene	0.0000400	0.0000500								U
Phenanthrene	0.0000400	0.0000500								U
Pyrene	0.0000400	0.0000500								U
IS: Acenaphthene-d10	0.00800		0.00800		103	50	200			
IS: Chrysene-d12	0.00800		0.00800		91.9	50	200			
IS: Naphthalene-d8	0.00800		0.00800		94.6	50	200			
IS: Perylene-d12	0.00800		0.00800		92.8	50	200			
IS: Phenanthrene-d10	0.00800		0.00800		103	50	200			
Surr: 2-Fluorobiphenyl	5.72		8.000		71.6	53	106			
Surr: 4-Terphenyl-d14	5.05		8.000		63.1	58	132			

Sample ID **SBLK-160803**	Batch ID: **76564**	TestNo: **SW8270D-LL**	Units: **mg/L**
SampType: **SBLK**	Run ID: **GCMS8_160803B**	Analysis Date: **8/3/2016 9:47:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.0000400	0.0000500	0							U
Acenaphthylene	0.0000400	0.0000500	0							U
Anthracene	0.0000400	0.0000500	0							U
Benzo[a]anthracene	0.0000400	0.0000500	0							U
Benzo[a]pyrene	0.0000400	0.0000500	0							U
Benzo[b]fluoranthene	0.0000400	0.0000500	0							U
Benzo[e]pyrene	0.0000400	0.0000500	0							U
Benzo[g,h,i]perylene	0.0000400	0.0000500	0							U
Benzo[j]fluoranthene	0.0000400	0.0000500	0							NU
Benzo[k]fluoranthene	0.0000400	0.0000500	0							U
Chrysene	0.0000400	0.0000500	0							U
Dibenz[a,h]anthracene	0.0000400	0.0000500	0							U
Fluoranthene	0.0000400	0.0000500	0							U
Fluorene	0.0000400	0.0000500	0							U
Indeno[1,2,3-cd]pyrene	0.0000400	0.0000500	0							U
Phenanthrene	0.0000400	0.0000500	0							U
Pyrene	0.0000400	0.0000500	0							U
IS: Acenaphthene-d10	0.00800		0							
IS: Chrysene-d12	0.00800		0							
IS: Naphthalene-d8	0.00800		0							
IS: Perylene-d12	0.00800		0							
IS: Phenanthrene-d10	0.00800		0							

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1607337
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: GCMS8_160803B

Sample ID **ICV-160803**	Batch ID: **R87401**	TestNo: **SW8270D-LL**	Units: **mg/L**
SampType: **ICV**	Run ID: **GCMS8_160803B**	Analysis Date: **8/3/2016 9:09:00 AM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	1.98	0.0000500	2.00	0	98.9	80	120			
Acenaphthylene	2.01	0.0000500	2.00	0	100	80	120			
Anthracene	1.91	0.0000500	2.00	0	95.5	80	120			
Benzo[a]anthracene	2.07	0.0000500	2.00	0	103	80	120			
Benzo[a]pyrene	2.08	0.0000500	2.00	0	104	80	120			
Benzo[b]fluoranthene	2.10	0.0000500	2.00	0	105	80	120			
Benzo[e]pyrene	2.02	0.0000500	2.00	0	101	80	120			
Benzo[g,h,i]perylene	2.03	0.0000500	2.00	0	102	80	120			
Benzo[j]fluoranthene	2.10	0.0000500	2.00	0	105	80	120			N
Benzo[k]fluoranthene	2.16	0.0000500	2.00	0	108	80	120			
Chrysene	2.03	0.0000500	2.00	0	101	80	120			
Dibenz[a,h]anthracene	2.14	0.0000500	2.00	0	107	80	120			
Fluoranthene	1.94	0.0000500	2.00	0	97.0	80	120			
Fluorene	2.02	0.0000500	2.00	0	101	80	120			
Indeno[1,2,3-cd]pyrene	2.12	0.0000500	2.00	0	106	80	120			
Phenanthrene	1.90	0.0000500	2.00	0	95.0	80	120			
Pyrene	1.90	0.0000500	2.00	0	94.8	80	120			
IS: Acenaphthene-d10	4.00		4.00		100	50	200			
IS: Chrysene-d12	4.00		4.00		97.2	50	200			
IS: Naphthalene-d8	4.00		4.00		99.5	50	200			
IS: Perylene-d12	4.00		4.00		97.1	50	200			
IS: Phenanthrene-d10	4.00		4.00		102	50	200			
Surr: 2-Fluorobiphenyl	1930		2000		96.7	65	120			
Surr: 4-Terphenyl-d14	1910		2000		95.5	65	120			

Sample ID **ICV2-160803**	Batch ID: **R87401**	TestNo: **SW8270D-LL**	Units: **mg/L**
SampType: **ICV**	Run ID: **GCMS8_160803B**	Analysis Date: **8/3/2016 8:27:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	1.96	0.0000500	2.00	0	98.1	80	120			
Acenaphthylene	1.99	0.0000500	2.00	0	99.7	80	120			
Anthracene	1.87	0.0000500	2.00	0	93.3	80	120			
Benzo[a]anthracene	2.07	0.0000500	2.00	0	104	80	120			
Benzo[a]pyrene	2.07	0.0000500	2.00	0	104	80	120			
Benzo[b]fluoranthene	2.12	0.0000500	2.00	0	106	80	120			
Benzo[e]pyrene	2.02	0.0000500	2.00	0	101	80	120			
Benzo[g,h,i]perylene	2.10	0.0000500	2.00	0	105	80	120			
Benzo[j]fluoranthene	2.15	0.0000500	2.00	0	107	80	120			N
Benzo[k]fluoranthene	2.22	0.0000500	2.00	0	111	80	120			
Chrysene	2.01	0.0000500	2.00	0	101	80	120			
Dibenz[a,h]anthracene	2.19	0.0000500	2.00	0	110	80	120			

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1607337
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: GCMS8_160803B

Sample ID **ICV2-160803**	Batch ID: **R87401**	TestNo: **SW8270D-LL**	Units: **mg/L**
SampType: **ICV**	Run ID: **GCMS8_160803B**	Analysis Date: **8/3/2016 8:27:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoranthene	1.72	0.0000500	2.00	0	85.9	80	120			
Fluorene	2.20	0.0000500	2.00	0	110	80	120			
Indeno[1,2,3-cd]pyrene	2.17	0.0000500	2.00	0	109	80	120			
Phenanthrene	1.99	0.0000500	2.00	0	99.7	80	120			
Pyrene	1.67	0.0000500	2.00	0	83.5	80	120			
IS: Acenaphthene-d10	4.00		4.00		115	50	200			
IS: Chrysene-d12	4.00		4.00		97.7	50	200			
IS: Naphthalene-d8	4.00		4.00		98.7	50	200			
IS: Perylene-d12	4.00		4.00		97.0	50	200			
IS: Phenanthrene-d10	4.00		4.00		122	50	200			
Surr: 2-Fluorobiphenyl	2030		2000		102	65	120			
Surr: 4-Terphenyl-d14	1660		2000		82.8	65	120			

Sample ID **CCV-160803**	Batch ID: **R87401**	TestNo: **SW8270D-LL**	Units: **mg/L**
SampType: **CCV**	Run ID: **GCMS8_160803B**	Analysis Date: **8/4/2016 1:45:00 AM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.967	0.0000500	1.00	0	96.7	50	150			
Acenaphthylene	0.978	0.0000500	1.00	0	97.8	50	150			
Anthracene	0.951	0.0000500	1.00	0	95.1	50	150			
Benzo[a]anthracene	1.01	0.0000500	1.00	0	101	50	150			
Benzo[a]pyrene	1.02	0.0000500	1.00	0	102	50	150			
Benzo[b]fluoranthene	1.00	0.0000500	1.00	0	100	50	150			
Benzo[e]pyrene	0.975	0.0000500	1.00	0	97.5	50	150			
Benzo[g,h,i]perylene	1.05	0.0000500	1.00	0	105	50	150			
Benzo[j]fluoranthene	1.05	0.0000500	1.00	0	105	50	150			N
Benzo[k]fluoranthene	1.10	0.0000500	1.00	0	110	50	150			
Chrysene	0.996	0.0000500	1.00	0	99.6	50	150			
Dibenz[a,h]anthracene	1.09	0.0000500	1.00	0	109	50	150			
Fluoranthene	0.805	0.0000500	1.00	0	80.5	50	150			
Fluorene	1.10	0.0000500	1.00	0	110	50	150			
Indeno[1,2,3-cd]pyrene	1.08	0.0000500	1.00	0	108	50	150			
Phenanthrene	0.945	0.0000500	1.00	0	94.5	50	150			
Pyrene	0.778	0.0000500	1.00	0	77.8	50	150			
IS: Acenaphthene-d10	4.00		4.00		130	50	200			
IS: Chrysene-d12	4.00		4.00		99.8	50	200			
IS: Naphthalene-d8	4.00		4.00		104	50	200			
IS: Perylene-d12	4.00		4.00		102	50	200			
IS: Phenanthrene-d10	4.00		4.00		130	50	200			
Surr: 2-Fluorobiphenyl	1040		1000		104	50	150			
Surr: 4-Terphenyl-d14	769		1000		76.9	50	150			

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1607337
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: GCMS8_160803C

Sample ID **DCS-76288**	Batch ID: **76288**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **DCS**	Run ID: **GCMS8_160803C**	Analysis Date: **8/3/2016 11:47:00 AM**	Prep Date: **7/18/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.00792	0.0100	0.01000	0	79.2	20	200	0	0	
Acenaphthylene	0.00785	0.0100	0.01000	0	78.5	20	200	0	0	
Anthracene	0.00753	0.0100	0.01000	0	75.3	20	200	0	0	
Benzo[a]anthracene	0.00871	0.0100	0.01000	0	87.1	20	200	0	0	
Benzo[a]pyrene	0.00830	0.0100	0.01000	0	83.0	20	200	0	0	
Benzo[b]fluoranthene	0.00872	0.0100	0.01000	0	87.2	20	200	0	0	
Benzo[e]pyrene	0.00949	0.0100	0.01000	0	94.9	20	200	0	0	
Benzo[g,h,i]perylene	0.00902	0.0100	0.01000	0	90.2	20	200	0	0	
Benzo[j]fluoranthene	0.00913	0.0100	0.01000	0	91.3	20	200	0	0	N
Benzo[k]fluoranthene	0.00833	0.0100	0.01000	0	83.3	20	200	0	0	
Chrysene	0.00876	0.0100	0.01000	0	87.6	20	200	0	0	
Dibenz[a,h]anthracene	0.00901	0.0100	0.01000	0	90.1	20	200	0	0	
Fluoranthene	0.00814	0.0100	0.01000	0	81.4	20	200	0	0	
Fluorene	0.00767	0.0100	0.01000	0	76.7	20	200	0	0	
Indeno[1,2,3-cd]pyrene	0.00954	0.0100	0.01000	0	95.4	20	200	0	0	
Phenanthrene	0.0101	0.0100	0.01000	0	101	20	200	0	0	
Pyrene	0.00814	0.0100	0.01000	0	81.4	20	200	0	0	

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1607337
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: GCMS8_160809A

The QC data in batch 76617 applies to the following samples: 1607337-01A, 1607337-02A, 1607337-03A, 1607337-04A, 1607337-05A, 1607337-06A, 1607337-07A, 1607337-08A

Sample ID **LCS-76617** Batch ID: **76617** TestNo: **SW8270D-LL** Units: **mg/Kg-dry**
SampType: **LCS** Run ID: **GCMS8_160809A** Analysis Date: **8/9/2016 9:44:00 AM** Prep Date: **8/2/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.771	0.0100	1.000	0	77.1	44	111			
Acenaphthylene	0.799	0.0100	1.000	0	79.9	39	116			
Anthracene	0.749	0.0100	1.000	0	74.9	50	114			
Benzo[a]anthracene	0.807	0.0100	1.000	0	80.7	54	122			
Benzo[a]pyrene	0.800	0.0100	1.000	0	80.0	50	125			
Benzo[b]fluoranthene	0.801	0.0100	1.000	0	80.1	53	128			
Benzo[e]pyrene	0.817	0.0100	1.000	0	81.7	43	140			
Benzo[g,h,i]perylene	0.843	0.0100	1.000	0	84.3	49	127			
Benzo[j]fluoranthene	0.884	0.0100	1.000	0	88.4	45	125			N
Benzo[k]fluoranthene	0.885	0.0100	1.000	0	88.5	56	123			
Chrysene	0.801	0.0100	1.000	0	80.1	57	118			
Dibenz[a,h]anthracene	0.888	0.0100	1.000	0	88.8	50	129			
Fluoranthene	0.806	0.0100	1.000	0	80.6	55	119			
Fluorene	0.657	0.0100	1.000	0	65.7	47	114			
Indeno[1,2,3-cd]pyrene	0.884	0.0100	1.000	0	88.4	49	130			
Phenanthrene	0.797	0.0100	1.000	0	79.7	49	113			
Pyrene	0.813	0.0100	1.000	0	81.3	55	117			
IS: Acenaphthene-d10	4.00		4.000		110	50	200			
IS: Chrysene-d12	4.00		4.000		90.5	50	200			
IS: Naphthalene-d8	4.00		4.000		132	50	200			
IS: Perylene-d12	4.00		4.000		106	50	200			
IS: Phenanthrene-d10	4.00		4.000		79.3	50	200			
Surr: 2-Fluorobiphenyl	0.592		1.000		59.2	46	115			
Surr: 4-Terphenyl-d14	0.834		1.000		83.4	58	133			

Sample ID **MB-76617** Batch ID: **76617** TestNo: **SW8270D-LL** Units: **mg/Kg-dry**
SampType: **MBLK** Run ID: **GCMS8_160809A** Analysis Date: **8/9/2016 10:24:00 AM** Prep Date: **8/2/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.00750	0.0100								U
Acenaphthylene	0.00750	0.0100								U
Anthracene	0.00750	0.0100								U
Benzo[a]anthracene	0.00750	0.0100								U
Benzo[a]pyrene	0.00750	0.0100								U
Benzo[b]fluoranthene	0.00750	0.0100								U
Benzo[e]pyrene	0.00750	0.0100								U
Benzo[g,h,i]perylene	0.00750	0.0100								U
Benzo[j]fluoranthene	0.00750	0.0100								NU
Benzo[k]fluoranthene	0.00750	0.0100								U

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1607337
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: GCMS8_160809A

Sample ID **MB-76617**	Batch ID: **76617**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **MBLK**	Run ID: **GCMS8_160809A**	Analysis Date: **8/9/2016 10:24:00 AM**	Prep Date: **8/2/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chrysene	0.00750	0.0100								U
Dibenz[a,h]anthracene	0.00750	0.0100								U
Fluoranthene	0.00750	0.0100								U
Fluorene	0.00750	0.0100								U
Indeno[1,2,3-cd]pyrene	0.00750	0.0100								U
Phenanthrene	0.00750	0.0100								U
Pyrene	0.00750	0.0100								U
IS: Acenaphthene-d10	4.00		4.000		101	50	200			
IS: Chrysene-d12	4.00		4.000		91.5	50	200			
IS: Naphthalene-d8	4.00		4.000		130	50	200			
IS: Perylene-d12	4.00		4.000		102	50	200			
IS: Phenanthrene-d10	4.00		4.000		76.1	50	200			
Surr: 2-Fluorobiphenyl	0.568		1.000		56.8	46	115			
Surr: 4-Terphenyl-d14	0.933		1.000		93.3	58	133			

Sample ID **SB-160809**	Batch ID: **76617**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **SBLK**	Run ID: **GCMS8_160809A**	Analysis Date: **8/9/2016 9:05:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.00750	0.0100	0							U
Acenaphthylene	0.00750	0.0100	0							U
Anthracene	0.00750	0.0100	0							U
Benzo[a]anthracene	0.00750	0.0100	0							U
Benzo[a]pyrene	0.00750	0.0100	0							U
Benzo[b]fluoranthene	0.00750	0.0100	0							U
Benzo[e]pyrene	0.00750	0.0100	0							U
Benzo[g,h,i]perylene	0.00750	0.0100	0							U
Benzo[j]fluoranthene	0.00750	0.0100	0							NU
Benzo[k]fluoranthene	0.00750	0.0100	0							U
Chrysene	0.00750	0.0100	0							U
Dibenz[a,h]anthracene	0.00750	0.0100	0							U
Fluoranthene	0.00750	0.0100	0							U
Fluorene	0.00750	0.0100	0							U
Indeno[1,2,3-cd]pyrene	0.00750	0.0100	0							U
Phenanthrene	0.00750	0.0100	0							U
Pyrene	0.00750	0.0100	0							U
IS: Acenaphthene-d10	4.00		0							
IS: Chrysene-d12	4.00		0							
IS: Naphthalene-d8	4.00		0							
IS: Perylene-d12	4.00		0							
IS: Phenanthrene-d10	4.00		0							

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1607337
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: GCMS8_160809A

Sample ID **SB-160809**	Batch ID: **76617**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **SBLK**	Run ID: **GCMS8_160809A**	Analysis Date: **8/9/2016 9:05:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 2-Fluorobiphenyl	0.0000600		0							
Surr: 4-Terphenyl-d14	0.000250		0							

Sample ID **1607317-27AMS**	Batch ID: **76617**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **MS**	Run ID: **GCMS8_160809A**	Analysis Date: **8/10/2016 3:02:00 AM**	Prep Date: **8/2/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.793	0.0982	0.9823	0	80.7	44	111			
Acenaphthylene	0.810	0.0982	0.9823	0	82.5	39	116			
Anthracene	0.745	0.0982	0.9823	0	75.9	50	114			
Benzo[a]anthracene	0.800	0.0982	0.9823	0	81.4	54	122			
Benzo[a]pyrene	0.792	0.0982	0.9823	0.04951	75.6	50	125			
Benzo[b]fluoranthene	0.802	0.0982	0.9823	0	81.6	53	128			
Benzo[e]pyrene	0.821	0.0982	0.9823	0	83.6	43	140			
Benzo[g,h,i]perylene	0.817	0.0982	0.9823	0	83.1	49	127			
Benzo[j]fluoranthene	0.786	0.0982	0.9823	0	80.0	45	125			N
Benzo[k]fluoranthene	0.734	0.0982	0.9823	0	74.7	56	123			
Chrysene	0.811	0.0982	0.9823	0	82.6	57	118			
Dibenz[a,h]anthracene	0.729	0.0982	0.9823	0	74.2	50	129			
Fluoranthene	0.814	0.0982	0.9823	0.06816	76.0	55	119			
Fluorene	0.673	0.0982	0.9823	0	68.5	47	114			
Indeno[1,2,3-cd]pyrene	0.793	0.0982	0.9823	0	80.8	49	130			
Phenanthrene	0.842	0.0982	0.9823	0	85.7	49	113			
Pyrene	0.814	0.0982	0.9823	0.06282	76.5	55	117			
IS: Acenaphthene-d10	39.3		3.929		140	50	200			
IS: Chrysene-d12	39.3		3.929		91.9	50	200			
IS: Naphthalene-d8	39.3		3.929		115	50	200			
IS: Perylene-d12	39.3		3.929		99.7	50	200			
IS: Phenanthrene-d10	39.3		3.929		91.5	50	200			
Surr: 2-Fluorobiphenyl	0.872		0.9823		88.8	46	115			
Surr: 4-Terphenyl-d14	0.765		0.9823		77.8	58	133			

Sample ID **1607317-27AMSD**	Batch ID: **76617**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **MSD**	Run ID: **GCMS8_160809A**	Analysis Date: **8/10/2016 3:42:00 AM**	Prep Date: **8/2/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.788	0.0991	0.9911	0	79.5	44	111	0.622	20	
Acenaphthylene	0.808	0.0991	0.9911	0	81.5	39	116	0.283	20	
Anthracene	0.740	0.0991	0.9911	0	74.7	50	114	0.746	20	
Benzo[a]anthracene	0.791	0.0991	0.9911	0	79.8	54	122	1.13	20	
Benzo[a]pyrene	0.770	0.0991	0.9911	0.04951	72.7	50	125	2.90	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1607337
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: GCMS8_160809A

Sample ID **1607317-27AMSD**	Batch ID: **76617**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **MSD**	Run ID: **GCMS8_160809A**	Analysis Date: **8/10/2016 3:42:00 AM**	Prep Date: **8/2/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzo[b]fluoranthene	0.794	0.0991	0.9911	0	80.1	53	128	0.991	20	
Benzo[e]pyrene	0.806	0.0991	0.9911	0	81.3	43	140	1.93	20	
Benzo[g,h,i]perylene	0.806	0.0991	0.9911	0	81.3	49	127	1.31	20	
Benzo[j]fluoranthene	0.804	0.0991	0.9911	0	81.2	45	125	2.30	20	N
Benzo[k]fluoranthene	0.711	0.0991	0.9911	0	71.7	56	123	3.21	20	
Chrysene	0.788	0.0991	0.9911	0	79.6	57	118	2.85	20	
Dibenz[a,h]anthracene	0.737	0.0991	0.9911	0	74.3	50	129	0.996	20	
Fluoranthene	0.825	0.0991	0.9911	0.06816	76.3	55	119	1.27	20	
Fluorene	0.669	0.0991	0.9911	0	67.5	47	114	0.612	20	
Indeno[1,2,3-cd]pyrene	0.788	0.0991	0.9911	0	79.5	49	130	0.735	20	
Phenanthrene	0.845	0.0991	0.9911	0	85.2	49	113	0.361	20	
Pyrene	0.816	0.0991	0.9911	0.06282	76.0	55	117	0.186	20	
IS: Acenaphthene-d10	39.6		3.964		140	50	200	0	0	
IS: Chrysene-d12	39.6		3.964		97.3	50	200	0	0	
IS: Naphthalene-d8	39.6		3.964		122	50	200	0	0	
IS: Perylene-d12	39.6		3.964		105	50	200	0	0	
IS: Phenanthrene-d10	39.6		3.964		94.4	50	200	0	0	
Surr: 2-Fluorobiphenyl	0.806		0.9911		81.4	46	115	0	0	
Surr: 4-Terphenyl-d14	0.779		0.9911		78.6	58	133	0	0	

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1607337
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: GCMS8_160809A

Sample ID **ICV-160809**	Batch ID: **R87516**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **ICV**	Run ID: **GCMS8_160809A**	Analysis Date: **8/9/2016 9:04:00 AM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	1.96	0.0100	2.000	0	98.2	80	120			
Acenaphthylene	2.06	0.0100	2.000	0	103	80	120			
Anthracene	1.97	0.0100	2.000	0	98.6	80	120			
Benzo[a]anthracene	2.02	0.0100	2.000	0	101	80	120			
Benzo[a]pyrene	2.06	0.0100	2.000	0	103	80	120			
Benzo[b]fluoranthene	2.03	0.0100	2.000	0	101	80	120			
Benzo[e]pyrene	1.98	0.0100	2.000	0	98.9	80	120			
Benzo[g,h,i]perylene	2.03	0.0100	2.000	0	101	80	120			
Benzo[j]fluoranthene	2.17	0.0100	2.000	0	108	80	120			N
Benzo[k]fluoranthene	2.23	0.0100	2.000	0	111	80	120			
Chrysene	2.01	0.0100	2.000	0	100	80	120			
Dibenz[a,h]anthracene	2.17	0.0100	2.000	0	109	80	120			
Fluoranthene	1.87	0.0100	2.000	0	93.7	80	120			
Fluorene	1.74	0.0100	2.000	0	86.8	80	120			
Indeno[1,2,3-cd]pyrene	2.12	0.0100	2.000	0	106	80	120			
Phenanthrene	1.99	0.0100	2.000	0	99.7	80	120			
Pyrene	1.85	0.0100	2.000	0	92.7	80	120			
IS: Acenaphthene-d10	4.00		4.000		143	50	200			
IS: Chrysene-d12	4.00		4.000		100	50	200			
IS: Naphthalene-d8	4.00		4.000		117	50	200			
IS: Perylene-d12	4.00		4.000		111	50	200			
IS: Phenanthrene-d10	4.00		4.000		100	50	200			
Surr: 2-Fluorobiphenyl	2.02		2.000		101	65	120			
Surr: 4-Terphenyl-d14	1.89		2.000		94.4	65	120			

Sample ID **ICV2-160809**	Batch ID: **R87516**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **ICV**	Run ID: **GCMS8_160809A**	Analysis Date: **8/9/2016 7:46:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	1.98	0.0100	2.000	0	99.0	80	120			
Acenaphthylene	2.07	0.0100	2.000	0	103	80	120			
Anthracene	1.94	0.0100	2.000	0	97.2	80	120			
Benzo[a]anthracene	2.02	0.0100	2.000	0	101	80	120			
Benzo[a]pyrene	2.06	0.0100	2.000	0	103	80	120			
Benzo[b]fluoranthene	2.02	0.0100	2.000	0	101	80	120			
Benzo[e]pyrene	1.98	0.0100	2.000	0	99.0	80	120			
Benzo[g,h,i]perylene	2.01	0.0100	2.000	0	100	80	120			
Benzo[j]fluoranthene	2.15	0.0100	2.000	0	107	80	120			N
Benzo[k]fluoranthene	2.21	0.0100	2.000	0	111	80	120			
Chrysene	2.01	0.0100	2.000	0	100	80	120			
Dibenz[a,h]anthracene	2.14	0.0100	2.000	0	107	80	120			

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1607337
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: GCMS8_160809A

Sample ID **ICV2-160809**	Batch ID: **R87516**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **ICV**	Run ID: **GCMS8_160809A**	Analysis Date: **8/9/2016 7:46:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoranthene	1.88	0.0100	2.000	0	93.8	80	120			
Fluorene	1.74	0.0100	2.000	0	87.2	80	120			
Indeno[1,2,3-cd]pyrene	2.09	0.0100	2.000	0	104	80	120			
Phenanthrene	2.00	0.0100	2.000	0	99.8	80	120			
Pyrene	1.87	0.0100	2.000	0	93.5	80	120			
IS: Acenaphthene-d10	4.00		4.000		147	50	200			
IS: Chrysene-d12	4.00		4.000		105	50	200			
IS: Naphthalene-d8	4.00		4.000		124	50	200			
IS: Perylene-d12	4.00		4.000		116	50	200			
IS: Phenanthrene-d10	4.00		4.000		105	50	200			
Surr: 2-Fluorobiphenyl	2.01		2.000		101	65	120			
Surr: 4-Terphenyl-d14	1.91		2.000		95.5	65	120			

Sample ID **CCV1-160809**	Batch ID: **R87516**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **CCV**	Run ID: **GCMS8_160809A**	Analysis Date: **8/10/2016 4:21:00 AM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	1.00	0.0100	1.000	0	100	50	150			
Acenaphthylene	1.04	0.0100	1.000	0	104	50	150			
Anthracene	0.963	0.0100	1.000	0	96.3	50	150			
Benzo[a]anthracene	0.999	0.0100	1.000	0	99.9	50	150			
Benzo[a]pyrene	1.02	0.0100	1.000	0	102	50	150			
Benzo[b]fluoranthene	1.01	0.0100	1.000	0	101	50	150			
Benzo[e]pyrene	0.992	0.0100	1.000	0	99.2	50	150			
Benzo[g,h,i]perylene	1.01	0.0100	1.000	0	101	50	150			
Benzo[j]fluoranthene	1.08	0.0100	1.000	0	108	50	150			N
Benzo[k]fluoranthene	1.06	0.0100	1.000	0	106	50	150			
Chrysene	1.01	0.0100	1.000	0	101	50	150			
Dibenz[a,h]anthracene	1.06	0.0100	1.000	0	106	50	150			
Fluoranthene	0.938	0.0100	1.000	0	93.8	50	150			
Fluorene	0.854	0.0100	1.000	0	85.4	50	150			
Indeno[1,2,3-cd]pyrene	1.04	0.0100	1.000	0	104	50	150			
Phenanthrene	1.02	0.0100	1.000	0	102	50	150			
Pyrene	0.937	0.0100	1.000	0	93.7	50	150			
IS: Acenaphthene-d10	4.00		4.000		154	50	200			
IS: Chrysene-d12	4.00		4.000		102	50	200			
IS: Naphthalene-d8	4.00		4.000		128	50	200			
IS: Perylene-d12	4.00		4.000		111	50	200			
IS: Phenanthrene-d10	4.00		4.000		103	50	200			
Surr: 2-Fluorobiphenyl	1.01		1.000		101	50	150			
Surr: 4-Terphenyl-d14	0.926		1.000		92.6	50	150			

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1607337
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: GCMS8_160810A

The QC data in batch 76629 applies to the following samples: 1607337-09A, 1607337-10A, 1607337-11A, 1607337-12A, 1607337-14A, 1607337-15A, 1607337-16A, 1607337-17A, 1607337-18A, 1607337-19A, 1607337-20A, 1607337-21A, 1607337-22A, 1607337-23A, 1607337-24A, 1607337-25A

Sample ID **LCS-76629** Batch ID: **76629** TestNo: **SW8270D-LL** Units: **mg/Kg-dry**
SampType: **LCS** Run ID: **GCMS8_160810A** Analysis Date: **8/10/2016 7:55:00 AM** Prep Date: **8/3/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.772	0.0100	1.000	0	77.2	44	111			
Acenaphthylene	0.808	0.0100	1.000	0	80.8	39	116			
Anthracene	0.723	0.0100	1.000	0	72.3	50	114			
Benzo[a]anthracene	0.790	0.0100	1.000	0	79.0	54	122			
Benzo[a]pyrene	0.761	0.0100	1.000	0	76.1	50	125			
Benzo[b]fluoranthene	0.777	0.0100	1.000	0	77.7	53	128			
Benzo[e]pyrene	0.804	0.0100	1.000	0	80.4	43	140			
Benzo[g,h,i]perylene	0.816	0.0100	1.000	0	81.6	49	127			
Benzo[j]fluoranthene	0.850	0.0100	1.000	0	85.0	45	125			N
Benzo[k]fluoranthene	0.836	0.0100	1.000	0	83.6	56	123			
Chrysene	0.792	0.0100	1.000	0	79.2	57	118			
Dibenz[a,h]anthracene	0.842	0.0100	1.000	0	84.2	50	129			
Fluoranthene	0.816	0.0100	1.000	0	81.6	55	119			
Fluorene	0.655	0.0100	1.000	0	65.5	47	114			
Indeno[1,2,3-cd]pyrene	0.846	0.0100	1.000	0	84.6	49	130			
Phenanthrene	0.819	0.0100	1.000	0	81.9	49	113			
Pyrene	0.827	0.0100	1.000	0	82.7	55	117			
IS: Acenaphthene-d10	4.00		4.000		106	50	200			
IS: Chrysene-d12	4.00		4.000		88.1	50	200			
IS: Naphthalene-d8	4.00		4.000		129	50	200			
IS: Perylene-d12	4.00		4.000		102	50	200			
IS: Phenanthrene-d10	4.00		4.000		76.5	50	200			
Surr: 2-Fluorobiphenyl	0.609		1.000		60.9	46	115			
Surr: 4-Terphenyl-d14	0.883		1.000		88.3	58	133			

Sample ID **MB-76629** Batch ID: **76629** TestNo: **SW8270D-LL** Units: **mg/Kg-dry**
SampType: **MBLK** Run ID: **GCMS8_160810A** Analysis Date: **8/10/2016 8:35:00 AM** Prep Date: **8/3/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.00750	0.0100								U
Acenaphthylene	0.00750	0.0100								U
Anthracene	0.00750	0.0100								U
Benzo[a]anthracene	0.00750	0.0100								U
Benzo[a]pyrene	0.00750	0.0100								U
Benzo[b]fluoranthene	0.00750	0.0100								U
Benzo[e]pyrene	0.00750	0.0100								U
Benzo[g,h,i]perylene	0.00750	0.0100								U
Benzo[j]fluoranthene	0.00750	0.0100								NU
Benzo[k]fluoranthene	0.00750	0.0100								U

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1607337
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: GCMS8_160810A

Sample ID **MB-76629**	Batch ID: **76629**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **MBLK**	Run ID: **GCMS8_160810A**	Analysis Date: **8/10/2016 8:35:00 AM**	Prep Date: **8/3/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chrysene	0.00750	0.0100								U
Dibenz[a,h]anthracene	0.00750	0.0100								U
Fluoranthene	0.00750	0.0100								U
Fluorene	0.00750	0.0100								U
Indeno[1,2,3-cd]pyrene	0.00750	0.0100								U
Phenanthrene	0.00750	0.0100								U
Pyrene	0.00750	0.0100								U
IS: Acenaphthene-d10	4.00		4.000		104	50	200			
IS: Chrysene-d12	4.00		4.000		84.2	50	200			
IS: Naphthalene-d8	4.00		4.000		121	50	200			
IS: Perylene-d12	4.00		4.000		97.5	50	200			
IS: Phenanthrene-d10	4.00		4.000		73.8	50	200			
Surr: 2-Fluorobiphenyl	0.663		1.000		66.3	46	115			
Surr: 4-Terphenyl-d14	0.909		1.000		90.9	58	133			

Sample ID **SB-160810**	Batch ID: **76629**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **SBLK**	Run ID: **GCMS8_160810A**	Analysis Date: **8/10/2016 6:34:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.00750	0.0100	0							U
Acenaphthylene	0.00750	0.0100	0							U
Anthracene	0.00750	0.0100	0							U
Benzo[a]anthracene	0.00750	0.0100	0							U
Benzo[a]pyrene	0.00750	0.0100	0							U
Benzo[b]fluoranthene	0.00750	0.0100	0							U
Benzo[e]pyrene	0.00750	0.0100	0							U
Benzo[g,h,i]perylene	0.00750	0.0100	0							U
Benzo[j]fluoranthene	0.00750	0.0100	0							NU
Benzo[k]fluoranthene	0.00750	0.0100	0							U
Chrysene	0.00750	0.0100	0							U
Dibenz[a,h]anthracene	0.00750	0.0100	0							U
Fluoranthene	0.00750	0.0100	0							U
Fluorene	0.00750	0.0100	0							U
Indeno[1,2,3-cd]pyrene	0.00750	0.0100	0							U
Phenanthrene	0.00750	0.0100	0							U
Pyrene	0.00750	0.0100	0							U
IS: Acenaphthene-d10	4.00		0							
IS: Chrysene-d12	4.00		0							
IS: Naphthalene-d8	4.00		0							
IS: Perylene-d12	4.00		0							
IS: Phenanthrene-d10	4.00		0							

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1607337
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: GCMS8_160810A

Sample ID **SB-160810**	Batch ID: **76629**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **SBLK**	Run ID: **GCMS8_160810A**	Analysis Date: **8/10/2016 6:34:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 2-Fluorobiphenyl	0.0000400		0							
Surr: 4-Terphenyl-d14	0.000150		0							

Sample ID **1607337-10AMS**	Batch ID: **76629**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **MS**	Run ID: **GCMS8_160810A**	Analysis Date: **8/10/2016 9:54:00 PM**	Prep Date: **8/3/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.750	0.0995	0.9950	0	75.4	44	111			
Acenaphthylene	0.763	0.0995	0.9950	0	76.7	39	116			
Anthracene	0.686	0.0995	0.9950	0	68.9	50	114			
Benzo[a]anthracene	0.728	0.0995	0.9950	0.6397	8.85	54	122			S
Benzo[a]pyrene	0.703	0.0995	0.9950	0.8150	-11.3	50	125			S
Benzo[b]fluoranthene	0.705	0.0995	0.9950	0.6975	0.711	53	128			S
Benzo[e]pyrene	0.752	0.0995	0.9950	0.5694	18.4	43	140			S
Benzo[g,h,i]perylene	0.746	0.0995	0.9950	0.5476	19.9	49	127			S
Benzo[j]fluoranthene	0.742	0.0995	0.9950	0.3856	35.8	45	125			SN
Benzo[k]fluoranthene	0.676	0.0995	0.9950	0.3600	31.8	56	123			S
Chrysene	0.737	0.0995	0.9950	0.7619	-2.46	57	118			S
Dibenz[a,h]anthracene	0.691	0.0995	0.9950	0.09920	59.5	50	129			
Fluoranthene	0.751	0.0995	0.9950	0.7830	-3.22	55	119			S
Fluorene	0.645	0.0995	0.9950	0	64.8	47	114			
Indeno[1,2,3-cd]pyrene	0.731	0.0995	0.9950	0.4502	28.2	49	130			S
Phenanthrene	0.808	0.0995	0.9950	0.2178	59.4	49	113			
Pyrene	0.757	0.0995	0.9950	0.7390	1.85	55	117			S
IS: Acenaphthene-d10	39.8		3.980		146	50	200			
IS: Chrysene-d12	39.8		3.980		104	50	200			
IS: Naphthalene-d8	39.8		3.980		125	50	200			
IS: Perylene-d12	39.8		3.980		112	50	200			
IS: Phenanthrene-d10	39.8		3.980		100	50	200			
Surr: 2-Fluorobiphenyl	0.804		0.9950		80.8	46	115			
Surr: 4-Terphenyl-d14	0.771		0.9950		77.5	58	133			

Sample ID **1607337-10AMSD**	Batch ID: **76629**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **MSD**	Run ID: **GCMS8_160810A**	Analysis Date: **8/10/2016 10:34:00 PM**	Prep Date: **8/3/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.744	0.0965	0.9653	0	77.0	44	111	0.873	20	
Acenaphthylene	0.749	0.0965	0.9653	0	77.6	39	116	1.79	20	
Anthracene	0.700	0.0965	0.9653	0	72.6	50	114	2.09	20	
Benzo[a]anthracene	0.715	0.0965	0.9653	0.6397	7.78	54	122	1.79	20	S
Benzo[a]pyrene	0.684	0.0965	0.9653	0.8150	-13.6	50	125	2.70	20	S

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1607337
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: GCMS8_160810A

Sample ID **1607337-10AMSD** Batch ID: **76629** TestNo: **SW8270D-LL** Units: **mg/Kg-dry**
SampType: **MSD** Run ID: **GCMS8_160810A** Analysis Date: **8/10/2016 10:34:00 PM** Prep Date: **8/3/2016**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzo[b]fluoranthene	0.691	0.0965	0.9653	0.6975	-0.682	53	128	1.96	20	S
Benzo[e]pyrene	0.740	0.0965	0.9653	0.5694	17.6	43	140	1.71	20	S
Benzo[g,h,i]perylene	0.721	0.0965	0.9653	0.5476	18.0	49	127	3.39	20	S
Benzo[j]fluoranthene	0.713	0.0965	0.9653	0.3856	33.9	45	125	3.94	20	SN
Benzo[k]fluoranthene	0.653	0.0965	0.9653	0.3600	30.3	56	123	3.57	20	S
Chrysene	0.723	0.0965	0.9653	0.7619	-4.00	57	118	1.94	20	S
Dibenz[a,h]anthracene	0.669	0.0965	0.9653	0.09920	59.0	50	129	3.25	20	
Fluoranthene	0.745	0.0965	0.9653	0.7830	-3.94	55	119	0.797	20	S
Fluorene	0.622	0.0965	0.9653	0	64.4	47	114	3.63	20	
Indeno[1,2,3-cd]pyrene	0.708	0.0965	0.9653	0.4502	26.7	49	130	3.13	20	S
Phenanthrene	0.758	0.0965	0.9653	0.2178	55.9	49	113	6.49	20	
Pyrene	0.744	0.0965	0.9653	0.7390	0.527	55	117	1.77	20	S
IS: Acenaphthene-d10	38.6		3.861		141	50	200	0	0	
IS: Chrysene-d12	38.6		3.861		100	50	200	0	0	
IS: Naphthalene-d8	38.6		3.861		124	50	200	0	0	
IS: Perylene-d12	38.6		3.861		108	50	200	0	0	
IS: Phenanthrene-d10	38.6		3.861		95.6	50	200	0	0	
Surr: 2-Fluorobiphenyl	0.757		0.9653		78.4	46	115	0	0	
Surr: 4-Terphenyl-d14	0.751		0.9653		77.8	58	133	0	0	

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1607337
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: GCMS8_160810A

Sample ID **ICV-160810**	Batch ID: **R87545**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **ICV**	Run ID: **GCMS8_160810A**	Analysis Date: **8/10/2016 7:14:00 AM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	1.96	0.0100	2.000	0	98.2	80	120			
Acenaphthylene	2.04	0.0100	2.000	0	102	80	120			
Anthracene	1.91	0.0100	2.000	0	95.6	80	120			
Benzo[a]anthracene	1.99	0.0100	2.000	0	99.7	80	120			
Benzo[a]pyrene	2.05	0.0100	2.000	0	103	80	120			
Benzo[b]fluoranthene	2.00	0.0100	2.000	0	99.9	80	120			
Benzo[e]pyrene	1.99	0.0100	2.000	0	99.3	80	120			
Benzo[g,h,i]perylene	1.99	0.0100	2.000	0	99.3	80	120			
Benzo[j]fluoranthene	2.18	0.0100	2.000	0	109	80	120			N
Benzo[k]fluoranthene	2.18	0.0100	2.000	0	109	80	120			
Chrysene	1.99	0.0100	2.000	0	99.7	80	120			
Dibenz[a,h]anthracene	2.14	0.0100	2.000	0	107	80	120			
Fluoranthene	1.84	0.0100	2.000	0	91.9	80	120			
Fluorene	1.71	0.0100	2.000	0	85.3	80	120			
Indeno[1,2,3-cd]pyrene	2.09	0.0100	2.000	0	104	80	120			
Phenanthrene	2.01	0.0100	2.000	0	101	80	120			
Pyrene	1.82	0.0100	2.000	0	90.8	80	120			
IS: Acenaphthene-d10	4.00		4.000		147	50	200			
IS: Chrysene-d12	4.00		4.000		99.8	50	200			
IS: Naphthalene-d8	4.00		4.000		119	50	200			
IS: Perylene-d12	4.00		4.000		110	50	200			
IS: Phenanthrene-d10	4.00		4.000		101	50	200			
Surr: 2-Fluorobiphenyl	2.07		2.000		103	65	120			
Surr: 4-Terphenyl-d14	1.86		2.000		93.1	65	120			

Sample ID **ICV-160810**	Batch ID: **R87545**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **ICV**	Run ID: **GCMS8_160810A**	Analysis Date: **8/10/2016 5:54:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	1.97	0.0100	2.000	0	98.3	80	120			
Acenaphthylene	2.05	0.0100	2.000	0	103	80	120			
Anthracene	1.92	0.0100	2.000	0	96.1	80	120			
Benzo[a]anthracene	2.01	0.0100	2.000	0	100	80	120			
Benzo[a]pyrene	2.04	0.0100	2.000	0	102	80	120			
Benzo[b]fluoranthene	1.99	0.0100	2.000	0	99.4	80	120			
Benzo[e]pyrene	1.97	0.0100	2.000	0	98.7	80	120			
Benzo[g,h,i]perylene	1.99	0.0100	2.000	0	99.6	80	120			
Benzo[j]fluoranthene	2.16	0.0100	2.000	0	108	80	120			N
Benzo[k]fluoranthene	2.19	0.0100	2.000	0	109	80	120			
Chrysene	2.00	0.0100	2.000	0	99.8	80	120			
Dibenz[a,h]anthracene	2.14	0.0100	2.000	0	107	80	120			

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1607337
Project: Laredo SGR

ANALYTICAL QC SUMMARY REPORT

RunID: GCMS8_160810A

Sample ID **ICV-160810**	Batch ID: **R87545**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **ICV**	Run ID: **GCMS8_160810A**	Analysis Date: **8/10/2016 5:54:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoranthene	1.88	0.0100	2.000	0	94.0	80	120			
Fluorene	1.74	0.0100	2.000	0	86.9	80	120			
Indeno[1,2,3-cd]pyrene	2.09	0.0100	2.000	0	105	80	120			
Phenanthrene	2.02	0.0100	2.000	0	101	80	120			
Pyrene	1.86	0.0100	2.000	0	93.1	80	120			
IS: Acenaphthene-d10	4.00		4.000		152	50	200			
IS: Chrysene-d12	4.00		4.000		108	50	200			
IS: Naphthalene-d8	4.00		4.000		125	50	200			
IS: Perylene-d12	4.00		4.000		118	50	200			
IS: Phenanthrene-d10	4.00		4.000		107	50	200			
Surr: 2-Fluorobiphenyl	2.00		2.000		100	65	120			
Surr: 4-Terphenyl-d14	1.92		2.000		95.8	65	120			

Sample ID **CCV1-160810**	Batch ID: **R87545**	TestNo: **SW8270D-LL**	Units: **mg/Kg-dry**
SampType: **CCV**	Run ID: **GCMS8_160810A**	Analysis Date: **8/10/2016 11:13:00 PM**	Prep Date:

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	1.00	0.0100	1.000	0	100	50	150			
Acenaphthylene	1.04	0.0100	1.000	0	104	50	150			
Anthracene	0.939	0.0100	1.000	0	93.9	50	150			
Benzo[a]anthracene	0.995	0.0100	1.000	0	99.5	50	150			
Benzo[a]pyrene	1.02	0.0100	1.000	0	102	50	150			
Benzo[b]fluoranthene	0.983	0.0100	1.000	0	98.3	50	150			
Benzo[e]pyrene	0.985	0.0100	1.000	0	98.5	50	150			
Benzo[g,h,i]perylene	1.01	0.0100	1.000	0	101	50	150			
Benzo[j]fluoranthene	1.07	0.0100	1.000	0	107	50	150			N
Benzo[k]fluoranthene	1.07	0.0100	1.000	0	107	50	150			
Chrysene	1.01	0.0100	1.000	0	101	50	150			
Dibenz[a,h]anthracene	1.06	0.0100	1.000	0	106	50	150			
Fluoranthene	0.941	0.0100	1.000	0	94.1	50	150			
Fluorene	0.847	0.0100	1.000	0	84.7	50	150			
Indeno[1,2,3-cd]pyrene	1.04	0.0100	1.000	0	104	50	150			
Phenanthrene	1.03	0.0100	1.000	0	103	50	150			
Pyrene	0.943	0.0100	1.000	0	94.3	50	150			
IS: Acenaphthene-d10	4.00		4.000		156	50	200			
IS: Chrysene-d12	4.00		4.000		102	50	200			
IS: Naphthalene-d8	4.00		4.000		128	50	200			
IS: Perylene-d12	4.00		4.000		112	50	200			
IS: Phenanthrene-d10	4.00		4.000		102	50	200			
Surr: 2-Fluorobiphenyl	1.02		1.000		102	50	150			
Surr: 4-Terphenyl-d14	0.920		1.000		92.0	50	150			

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAC certified

CLIENT: Arcadis
Work Order: 1607337
Project: Laredo SGR

MQL SUMMARY REPORT

TestNo: SW6020A	MDL	MQL
Analyte	**mg/Kg-dry**	**mg/Kg-dry**
Lead	0.100	0.300

TestNo: SW6020A	MDL	MQL
Analyte	**mg/L**	**mg/L**
Lead	0.000300	0.00100

TestNo: SW8270D-LL	MDL	MQL
Analyte	**mg/Kg-dry**	**mg/Kg-dry**
Acenaphthene	0.00500	0.0100
Acenaphthylene	0.00500	0.0100
Anthracene	0.00500	0.0100
Benzo[a]anthracene	0.00500	0.0100
Benzo[a]pyrene	0.00500	0.0100
Benzo[b]fluoranthene	0.00500	0.0100
Benzo[e]pyrene	0.00500	0.0100
Benzo[g,h,i]perylene	0.00500	0.0100
Benzo[j]fluoranthene	0.00500	0.0100
Benzo[k]fluoranthene	0.00500	0.0100
Chrysene	0.00500	0.0100
Dibenz[a,h]anthracene	0.00500	0.0100
Fluoranthene	0.00500	0.0100
Fluorene	0.00500	0.0100
Indeno[1,2,3-cd]pyrene	0.00500	0.0100
Phenanthrene	0.00500	0.0100
Pyrene	0.00500	0.0100

TestNo: SW8270D-LL	MDL	MQL
Analyte	**mg/L**	**mg/L**
Acenaphthene	0.0000250	0.0000500
Acenaphthylene	0.0000250	0.0000500
Anthracene	0.0000250	0.0000500
Benzo[a]anthracene	0.0000250	0.0000500
Benzo[a]pyrene	0.0000250	0.0000500
Benzo[b]fluoranthene	0.0000250	0.0000500
Benzo[e]pyrene	0.0000250	0.0000500
Benzo[g,h,i]perylene	0.0000250	0.0000500
Benzo[j]fluoranthene	0.0000250	0.0000500
Benzo[k]fluoranthene	0.0000250	0.0000500
Chrysene	0.0000250	0.0000500
Dibenz[a,h]anthracene	0.0000250	0.0000500
Fluoranthene	0.0000250	0.0000500
Fluorene	0.0000250	0.0000500
Indeno[1,2,3-cd]pyrene	0.0000250	0.0000500
Phenanthrene	0.0000250	0.0000500
Pyrene	0.0000250	0.0000500

Qualifiers: MQL -Method Quantitation Limit as defined by TRRP
MDL -Method Detection Limit as defined by TRRP

GCMS8
For

DHL Work Order
1607337

GCMS8_160803B
For

DHL Work Order
1607337

Lab Data Review Check List
EPA Method 8270 / 625 - PAH: Polynuclear Aromatic Hydrocarbons

SEE RUN LOG FOR ALL PROJECT AND BATCH NUMBERS AND MATRICES	Run ID: GCMS8_160803B
Batch Number(s): See Run Log. Matrix: See Run Log.	SOP: ORGANICS-PAH-01

Review Item	Yes	No	N/A	2nd Level Review
Data Folder Contents 1. Is the Prep Batch Report included? Check and record the following: ***Prep Start/End Dates, Sample Amounts, Bottle #s***	X			X
2. Are the reagents and spikes listed on the Prep Batch Report current with a valid expiration date? ***All standard/QC sample preparations shall be documented in LIMS***	X			
3. Is the Run Log and instrument sequence included? ***Check the Test Code, Sample Type, Batch ID, and Analysis Date/Time***	X			
4. Is the System Verification - Tune Report included? ***Date/Tme of Tune starts 12-hour analysis window***	X			
5. Is the Evaluate Continuing Calibration Report included?	X			

Daily Demonstration of Performance

QC items that do not meet method/SOP/project requirements will be described on the run log. All variances that impact data quality will be described in the Variance/Comment Section on page 2.

Review Item	Frequency	Limits	Pass	Fail (List Batch/Sample) **See Run Log**	2nd Level Review
Tune	Before ICAL Every 12 hours	See Tune Eval Report	X		X
Resolution Check - Benzo(b) and Benzo(k)phenanthrene	Before ICAL Every 12 hours	Benzo(b) and Benzo(k) Valley > 50%	X		
Initial Calibration Curve (ICAL) (minimum: 5 Standards)	Prior to samples and when ICV fails	Avg. RF - %RSD ≤ 15% Curve (COD) - R^2 ≥ 0.990	X		
SSCV - (Second Source)	After calibration (ICAL)	80-120%	X		
ICV - (Daily Initial Cal Verification)	Every 12 hours	ISTDs Area% (50-200%) Surrogates %R (See LIMS) Analytes %R (80-120%)	X		

Review Item	Frequency	Limits	Pass	Fail	N/A	Review
Method Blank (MB) System Blank (SYS Blank)	Every Batch (MB) Daily (SYS BL)	< MDL / <½ RL (DoD) or <1/10 the sample/reg limit	X			X
Lab Control Sample (LCS)	Every Batch	See LIMS	X			
Lab Control Sample Dup (LCSD)	Insufficient sample Sample Matrix	See LIMS			X	
LCSD - RPD	Every LCS/LCSD	≤ 30 (Aq/Soil/DoD)			X	
Field Samples	Up to 20 per prep batch	ISTDs Area% (50-200%) Surrogates %R (See LIMS) RRT ± 0.06 RRT Standard Q value > 70 - check for #		X		
Matrix Spike (MS)	Every Batch/20 samples	See LIMS			X	
Matrix Spike Duplicate (MSD) (MSD is N/A for Method 625)	Every Prep Batch except Method 625	See LIMS			X	
MSD - RPD (MSD is N/A for Method 625)	Every MS/MSD except Method 625	≤ 30 (Aq/Soil/DoD)			X	

Lab Data Review Check List
EPA Method 8270 / 625 - PAH: Polynuclear Aromatic Hydrocarbons

Review Item	Criteria	Yes	No	N/A	2nd Level Review
Sample Analysis 1. Are all sample hold times met?	7 days (Aq) - extraction	X			X
	14 days (Soil) - extraction			X	
	40 days analysis	X			
2. Are all manual integrations signed (Before & After) and printouts included ? Put in LIMS Comment Section ***Include MI form for DoD work***	Before & After - signed Comment Section in LIMS MI Form - DoD only			X	
3. Are all samples with concentrations > the highest standard used for calibration diluted and reanalyzed?	> highest standard			X	
Review Item #3 is N/A ONLY if all sample results are within Calibration range or NO if dilution is in different folder					
4. Is mass spectra reviewed/verified if Q value is <70 and/or # flag for results >MDL?	Q value <70 - All hits	X			X
5. Are ALL reported analytes > MDL (+ J flags) circled by the analyst?		X	**Return to analyst if NO**		
VARIANCE REPORT					
QC items that do not meet method/SOP/project requirements will be described on the run log. All variances that impact data quality will be described in this section.					
NON-CONFORMANCES / VARIANCE 1. Are all non-conformances included and noted?	All deviations from the method and SOP that affect data quality	X			X
2. Are all corrective actions included?			X		
3. Does the variance require approval by the Technical Director/General Manager/QA Manager?		X			

Approved by: Date:

Description and Corrective Actions of QC items that do not meet method/SOP/project requirements:

****INCLUDE VARIANCE ITEM / REASON / CORRECTIVE ACTION / IMPACT ON DATA****

VARIANCE ITEM	REASON	CORRECTIVE ACTION
___ Hold Time exceeded (7D/14D-Ext/40D-Analysis)	___ Sample Received out of HT	___ Reanalyze QC to confirm
___ ICV out of control (±20%)	___ Carryover from previous run	___ Recalibrate
___ MB/SYS BL out of control (> MDL / >½ RL)	___ Cross contamination	___ Reprep/Reanalyze sample
___ LCS __LCSD out of control (See LIMS)	___ Lab Artifact	___ Reprep/Reanalyze Batch
___ RPD out of control for LCS/LCSD (>30)	___ Prep Spike error (describe)	___ Reanalyze Batch/Sample/QC
___ MS ___ MSD out of control (See LIMS)	___ High Levels of target analytes	___ Verify H2O/reagents are clean
___ RPD out of control for MS/MSD (>30)	___ High Levels of non-targets	___ Reanalyze sample to confirm
___ Internal Standard(s) out of control	___ Insufficient sample for QC	___ Sample results ND w/ dilution
___ Multiple Surrogates out of control	___ Prep Error	___ Client notified and approved
___ No MS/MSD prepared - LCS/LCSD used instead	___ Analytical Error	X Flag data / Case narrative
___ Missing QC (other than MS/MSD)	___ Client Request	___ Instrument Maintenance
___ QC sample(s) was mis-spiked	___ Other (describe below)	___ Accept data
X Other (describe below)		___ Cannot reanalyze (HT out/Lack of Sample)

General Comments and Impact on Data: **See Run Log.**

One surrogate low - see run log. The other surrogate is passing. Sample is past hold time - no corrective action taken.

Analyst: Karyn Lane Date: 8/4/2016

Second-Level Review: Date: REVIEWED/APPROVED By Sherri Herschmann at 11:20:53 AM, 8/10/2016 08/10/2016

DHL Analytical, Inc.

Run ID: GCMS8_160803B **Run No.:** 87401

Analytical Run Date: 8/3/2016 **InstrumentID:** GCMS8

Analyst: Karyn Lane **Column:** Rtx-5Sil MS (30m x 0.25mm ID x 0.5µm df)

Calibration ID: 681 **Column ID:** 0.18mm

Column Length: 20m

Cal Comments: PAH160802.M

SampID	DF	TestCode	SampType	Batch ID	Analysis Date/Time	Q	Comments
DFTPP-160803	1	PAH_LL_WDOD1	TUNE	R87401	8/3/2016 8:30:00 AM		
ICV-160803	1	PAH_LL_WDOD1	ICV	R87401	8/3/2016 9:09:00 AM		
LCS-76564	1	PAH_LL_WDOD1	LCS	76564	8/3/2016 9:49:00 AM		Equipment blanks - LCS and MB only required.
MB-76564	1	PAH_LL_WDOD1	MBLK	76564	8/3/2016 11:08:00 AM		
1607294-13B	1	PAH_LL_WDOD1	SAMP	76564	8/3/2016 1:47:00 PM		Surrogate 4-Terphenyl-d14 low - confirmed by reanalysis.
1607294-24B	1	PAH_LL_WDOD1	SAMP	76564	8/3/2016 3:07:00 PM		
1607294-37B	1	PAH_LL_WDOD1	SAMP	76564	8/3/2016 3:47:00 PM		
1607294-50B	1	PAH_LL_WDOD1	SAMP	76564	8/3/2016 4:27:00 PM		
1607294-63B	1	PAH_LL_WDOD1	SAMP	76564	8/3/2016 5:07:00 PM		
1607294-76B	1	PAH_LL_WDOD1	SAMP	76564	8/3/2016 5:47:00 PM		
1607314-07B	1	PAH_LL_WDOD1	SAMP	76564	8/3/2016 6:27:00 PM		
1607317-13B	1	PAH_LL_WDOD1	SAMP	76564	8/3/2016 7:06:00 PM		
DFTPP2-160803	1	PAH_LL_WDOD1	TUNE	R87401	8/3/2016 7:48:00 PM		
ICV2-160803	1	PAH_LL_WDOD1	ICV	R87401	8/3/2016 8:27:00 PM		
SBLK-160803	1	PAH_LL_WDOD1	SBLK	76564	8/3/2016 9:47:00 PM		
1607317-26B	1	PAH_LL_WDOD1	SAMP	76564	8/3/2016 10:26:00 PM		
1607317-39B	1	PAH_LL_WDOD1	SAMP	76564	8/3/2016 11:06:00 PM		
1607337-13B	1	PAH_LL_WDOD1	SAMP	76564	8/3/2016 11:46:00 PM		
1607337-26B	1	PAH_LL_WDOD1	SAMP	76564	8/4/2016 12:26:00 AM		
1607294-13B	1	PAH_LL_WDOD1	SAMP	76564	8/4/2016 1:06:00 AM		DNR - for confirmation only.
CCV-160803	1	PAH_LL_WDOD1	CCV	R87401	8/4/2016 1:45:00 AM		

Std ID	Std Name	Type	Exp. Date
DFTPP160509	2.5 PPM 525 TUNE STD.	TUNE	05/07/2017
PAHICV160802	2 PPM PAH ICV	ICV	01/31/2017
SVI160510-3	4000 PPM INTERNAL STANDAR	ALL	07/30/2017

REVIEWED/APPROVED

By Sherri Herschmann at 11:21:45 AM, 8/10/2016

Sequence Name: C:\msdchem\1\sequence\160803.S
Comment:
Operator:
Data Path: C:\MSDCHEM\1\DATA\160803\
Instrument Name: GCMS #8
Instrument Control Pre-Seq Cmd:
Data Analysis Pre-Seq Cmd:

Instrument Control Post-Seq Cmd:
Data Analysis Post-Seq Cmd:

Method Sections To Run
(X) Full Method
( ) Reprocessing Only

On A Barcode Mismatch
(X) Inject Anyway
( ) Don't Inject

Line		Sample Name/Misc Info		
1)	Sample	1	16080301 DFTPPPAH	DFTPP-160803
2)	Sample	2	16080302 PAH160802	ICV-160803
3)	Sample	3	16080303 PAH160802	LCS-76564
4)	Sample	4	16080304 PAH160802	LCSD-76563
5)	Sample	5	16080305 PAH160802	MB-76564
6)	Sample	6	16080306 PAH160802	DCS-76288
7)	Sample	7	16080307 PAH160802	LQV1-73288
8)	Sample	8	16080308 PAH160802	1607303-11C
9)	Sample	9	16080309 PAH160802	1607294-13B
10)	Sample	10	16080310 PAH160802	1607303-11C
11)	Sample	11	16080311 PAH160802	1607294-24B
12)	Sample	12	16080312 PAH160802	1607294-37B
13)	Sample	13	16080313 PAH160802	1607294-50B
14)	Sample	14	16080314 PAH160802	1607294-63B
15)	Sample	15	16080315 PAH160802	1607294-76B
16)	Sample	16	16080316 PAH160802	1607314-07B
17)	Sample	17	16080317 PAH160802	1607317-13B
18)	Sample	18	16080318 DFTPPPAH	DFTPP2-160803
19)	Sample	19	16080319 PAH160802	ICV2-160803
20)	Sample	20	16080320 PAH160802	SBLK
21)	Sample	21	16080321 PAH160802	SBLK-160803
22)	Sample	22	16080322 PAH160802	1607317-26B
23)	Sample	23	16080323 PAH160802	1607317-39B
24)	Sample	24	16080324 PAH160802	1607337-13B
25)	Sample	25	16080325 PAH160802	1607337-26B
26)	Sample	26	16080326 PAH160802	1607294-13B
27)	Sample	27	16080327 PAH160802	CCV-160803

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **7/29/2016 10:26:10 AM**
Digestion:
Prep End Date: **7/29/2016 2:03:00 PM**

Prep Batch **76564** Prep Code: **3510_PAHDOD** Technician: **Lauren Garcia**

Prep Factor Units: **mL/mL**

Equipment List

Turbo-Vap #1,2,3
Balance # 25, 29

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607294-13B	Equip Blank	6	254.9	1	0.004	1 of 1	
1607294-24B	Equip Blank	6	252.3	1	0.004	1 of 1	
1607294-37B	Equip Blank	6	251.6	1	0.004	1 of 1	
1607294-50B	Equip Blank	6	251.4	1	0.004	1 of 1	
1607294-63B	Equip Blank	6	253.9	1	0.004	1 of 1	
1607294-76B	Equip Blank	6	251	1	0.004	1 of 1	
1607314-07B	Equip Blank	6	253.4	1	0.004	1 of 1	
1607317-13B	Equip Blank	6	251.1	1	0.004	1 of 1	
1607317-26B	Equip Blank	6	250.8	1	0.004	1 of 1	
1607317-39B	Equip Blank	6	254.2	1	0.004	1 of 1	
1607337-13B	Aqueous	6	252.9	1	0.004	1 of 1	
1607337-26B	Aqueous	6	252.3	1	0.004	1 of 1	
LCS-76564	Aqueous	6	500	1	0.002	of	
MB-76564	Aqueous	6	500	1	0.002	of	

Number	Reagent Name	Amt	Units	Exp. Da
7509	pH paper 0-14	1	paper	10/15/2025
10394	Purified Sodium Sulfate	10	g	05/23/2026
10419	Methylene Chloride	120	ml	05/31/2026
10535	Whatman 41 Filter	1	filter	07/08/2026

Spk ID	Spike Name	SampType	Amt (mL or g)	Exp. Date
PAHPREP160727	200 PPM PAH Spike Mix	LCS	0.01	10/25/2016
SVPREP160727	40 PPM Surrogate Standard	ALL	0.1	10/25/2016

REVIEWED/APPROVED
By Sherri Herschmann at 11:21:52 AM, 8/10/2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **7/29/2016 10:26:10 AM**
Digestion:
Prep End Date: 7/29/16 2:03 PM

Prep Batch **76564** Prep Code: **3510_PAHDOD** Technician: **Lauren Garcia**

Prep Factor Units: **mL/mL**

Equipment List
Turbo-Vap #1,2,3
Balance # 25, 29

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607294-13B	Equip Blank	6	500	1	0.002	1 of 1	794.2 - 539.3 = 254.9
1607294-24B	Equip Blank		500	1	0.002	1 of 1	775.4 - 523.1 = 252.3
1607294-37B	Equip Blank		500	1	0.002	1 of 1	788.9 - 537.3 = 251.6
1607294-50B	Equip Blank		500	1	0.002	1 of 1	775.7 - 524.3 = 251.4
1607294-63B	Equip Blank		500	1	0.002	1 of 1	781.2 - 527.7 = 253.9
1607294-76B	Equip Blank		500	1	0.002	1 of 1	780.4 - 529.4 = 251.0
1607314-07B	Equip Blank		500	1	0.002	1 of 1	~~773.2 - =~~ 7/29/16 773.9 - 520.5 = 253.4
1607317-13B	Equip Blank		500	1	0.002	1 of 1	772.7 - 521.1 = 251.1
1607317-26B	Equip Blank		500	1	0.002	1 of 1	765.7 - 514.9 = 250.8
1607317-39B	Equip Blank		500	1	0.002	1 of 1	771.3 - 517.1 = 254.2
LCS-76564	Aqueous	6	500	1	0.002	of	
MB-76564	Aqueous	6	500	1	0.002	of	

1607337-13B
337-26B

764.1 - 511.2 = 252.9
781.9 - 529.6 = 252.3

REVIEWED/APPROVED
By Sherri Herschmann at 11:24:24 AM, 8/10/2016

Number	Reagent Name	Amt	Units	Exp. D
7509	pH paper 0-14	1	paper	10/15/2025
10394	Purified Sodium Sulfate	10	g	05/23/2026
10419	Methylene Chloride	120	ml	05/31/2026
10535	Whatman 41 Filter	1	filter	07/08/2026

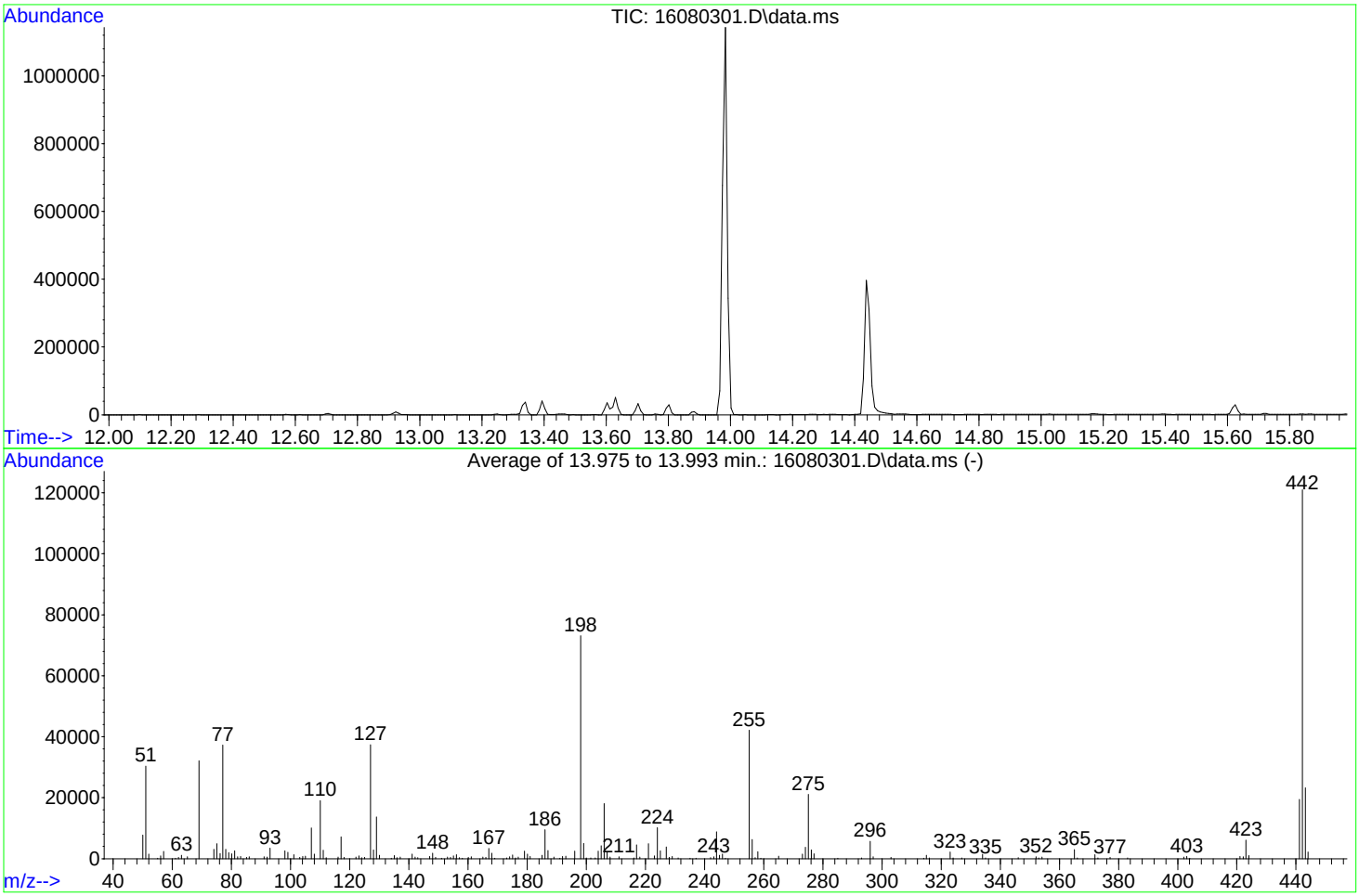
Spk ID	Spike Name	SampType	Amt (mL or g)	Exp. Date
PAHPREP160727	200 PPM PAH Spike Mix	LCS	0.01	10/25/2016
SVPREP160727	40 PPM Surrogate Standard	ALL	0.1	10/25/2016

7/29/16 7/29/16 7/29/16

Data Path : C:\msdchem\1\DATA\160803\
Data File : 16080301.D
Acq On : 3 Aug 2016 8:30 am
Operator :
Sample : DFTPP-160803
Misc : TUNE
ALS Vial : 1 Sample Multiplier: 1

Integration File: RTEINT.P

Method : C:\msdchem\1\METHODS\DFTPPPAH.M
Title : CLP BNA Calibration - Large Volume Injection
Last Update : Thu Aug 27 07:24:43 2015



AutoFind: Scans 429, 430, 431; Background Corrected with Scan 425

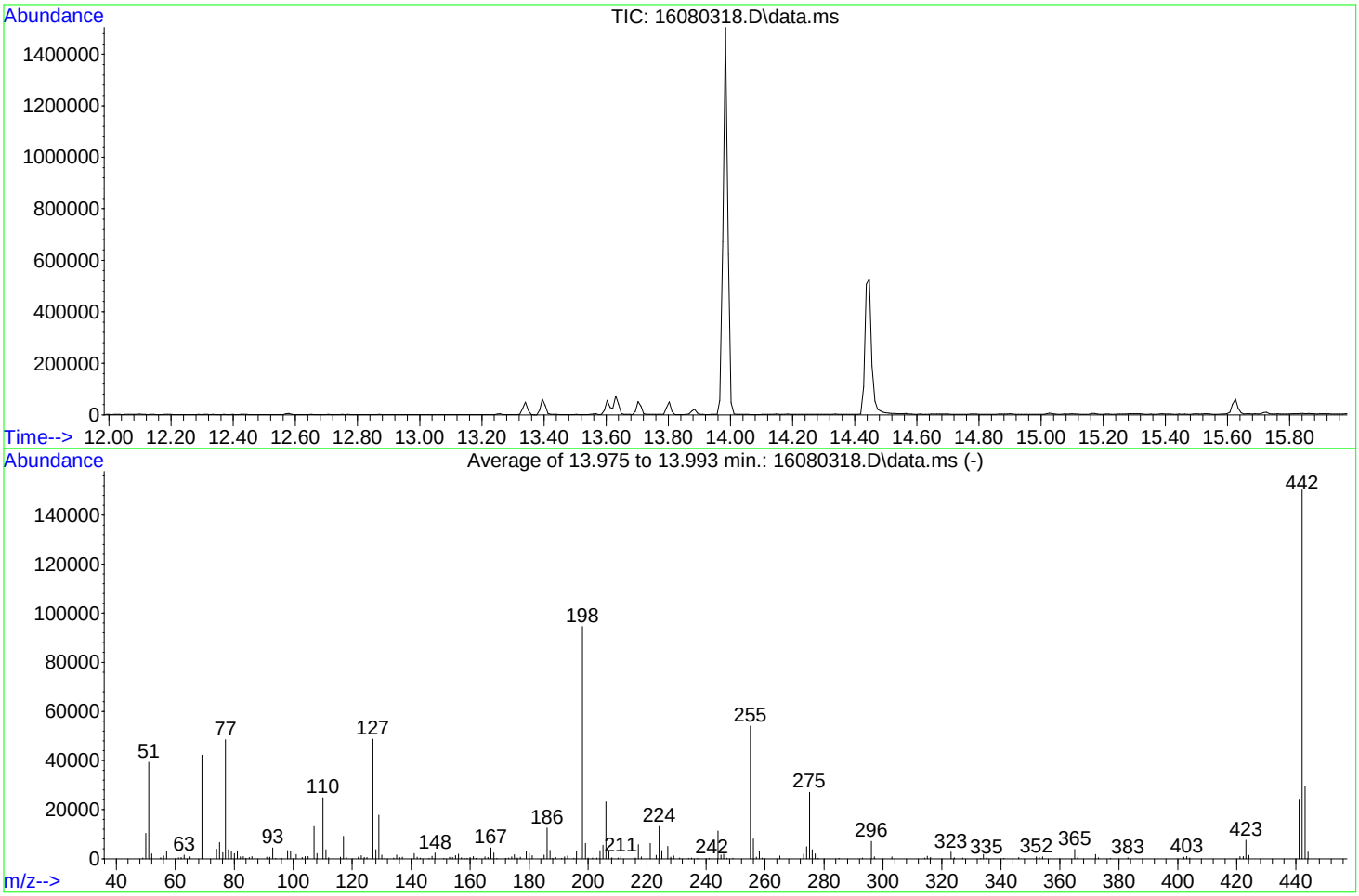
Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	10	80	41.5	30395	PASS
68	69	0.00	2	0.0	0	PASS
69	198	0.00	100	43.9	32151	PASS
70	69	0.00	2	0.0	0	PASS
127	198	10	80	51.1	37380	PASS
197	198	0.00	2	0.0	0	PASS
198	198	100	100	100.0	73176	PASS
199	198	5	9	6.9	5031	PASS
275	198	10	60	28.8	21092	PASS
365	198	1	200	4.1	3004	PASS
441	442	0.01	24	16.1	19486	PASS
442	198	50	400	165.4	121034	PASS
443	442	15	24	19.2	23240	PASS

REVIEWED/APPROVED
By Sherri Herschmann at 9:49:02 AM, 8/4/2016

Data Path : C:\msdchem\1\DATA\160803\
Data File : 16080318.D
Acq On : 3 Aug 2016 7:48 pm
Operator :
Sample : DFTPP2-160803
Misc : TUNE
ALS Vial : 18 Sample Multiplier: 1

Integration File: RTEINT.P

Method : C:\msdchem\1\METHODS\DFTPPPAH.M
Title : CLP BNA Calibration - Large Volume Injection
Last Update : Thu Aug 27 07:24:43 2015



AutoFind: Scans 429, 430, 431; Background Corrected with Scan 425

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	10	80	41.5	39277	PASS
68	69	0.00	2	0.0	0	PASS
69	198	0.00	100	44.5	42136	PASS
70	69	0.00	2	0.0	0	PASS
127	198	10	80	51.5	48754	PASS
197	198	0.00	2	0.0	0	PASS
198	198	100	100	100.0	94600	PASS
199	198	5	9	6.7	6295	PASS
275	198	10	60	28.6	27089	PASS
365	198	1	200	4.0	3811	PASS
441	442	0.01	24	15.9	23947	PASS
442	198	50	400	158.9	150304	PASS
443	442	15	24	19.6	29507	PASS

REVIEWED/APPROVED
By Sherri Herschmann at 11:24:44 AM, 8/10/2016

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160803\
Data File : 16080302.D
Acq On : 3 Aug 2016 9:09 am
Operator :
Sample : ICV-160803
Misc : ICV
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Aug 03 16:06:53 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 10:10:50 2016
Response via : Initial Calibration

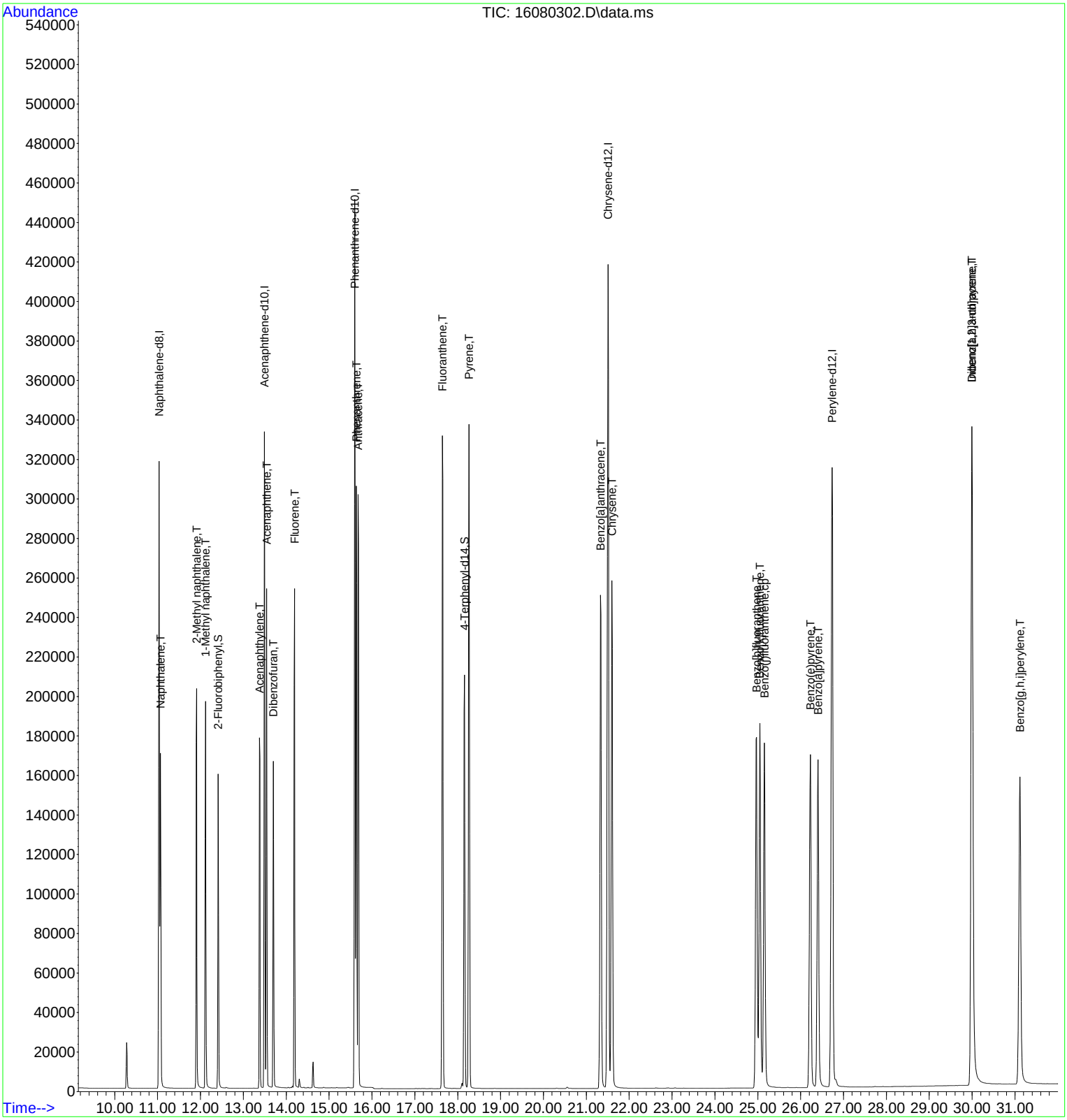
Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	11.033	136	390553	4000.00	ug/kg	100
6) Acenaphthene-d10	13.490	164	183562	4000.00	ug/kg	100
11) Phenanthrene-d10	15.600	188	509810	4000.00	ug/kg	102
17) Chrysene-d12	21.508	240	654325	4000.00	ug/kg	97
20) Perylene-d12	26.733	264	594983	4000.00	ug/kg	97
System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.413	172	125265	1934.07	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 48.35%			
15) 4-Terphenyl-d14	18.159	244	242415	1909.23	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery = 47.73%#			
Target Compounds						Qvalue
2) Naphthalene	11.068	128	178905	1883.99	ug/kg	100
3) 2-Methyl naphthalene	11.910	142	117561	1967.33	ug/kg	97
4) 1-Methyl naphthalene	12.118	142	107352	1956.46	ug/kg	98
7) Acenaphthylene	13.377	152	176868	2009.63	ug/kg	99
8) Acenaphthene	13.542	153	110322	1978.58	ug/kg	99
9) Dibenzofuran	13.698	168	155670	1970.36	ug/kg	71
10) Fluorene	14.193	166	134789	2021.51	ug/kg	99
12) Phenanthrene	15.634	178	262008	1900.99	ug/kg	99
13) Anthracene	15.678	178	269388	1910.93	ug/kg	99
14) Fluoranthene	17.643	202	358655	1939.37	ug/kg	100
16) Pyrene	18.263	202	364075	1896.47	ug/kg	100
18) Benzo[a]anthracene	21.331	228	350831	2067.91	ug/kg	100
19) Chrysene	21.597	228	328075	2026.60	ug/kg	100
21) Benzo[b]fluoranthene	24.970	252	336445	2095.75	ug/kg	99
22) Benzo[k]fluoranthene	25.051	252	296090	2155.96	ug/kg	99
23) Benzo(j)fluoranthene	25.155	252	281469	2098.35	ug/kg	100
24) Benzo(e)pyrene	26.226	252	313111	2015.57	ug/kg	100
25) Benzo[a]pyrene	26.403	252	307070	2082.90	ug/kg	99
26) Indeno[1,2,3-cd]pyrene	30.002	276	369754	2123.66	ug/kg	98
27) Dibenz[a,h]anthracene	29.994	278	306446	2140.51	ug/kg	99
28) Benzo[g,h,i]perylene	31.113	276	311193	2034.70	ug/kg	97

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160803\
Data File : 16080302.D
Acq On : 3 Aug 2016 9:09 am
Operator :
Sample : ICV-160803
Misc : ICV
ALS Vial : 2 Sample Multiplier: 1

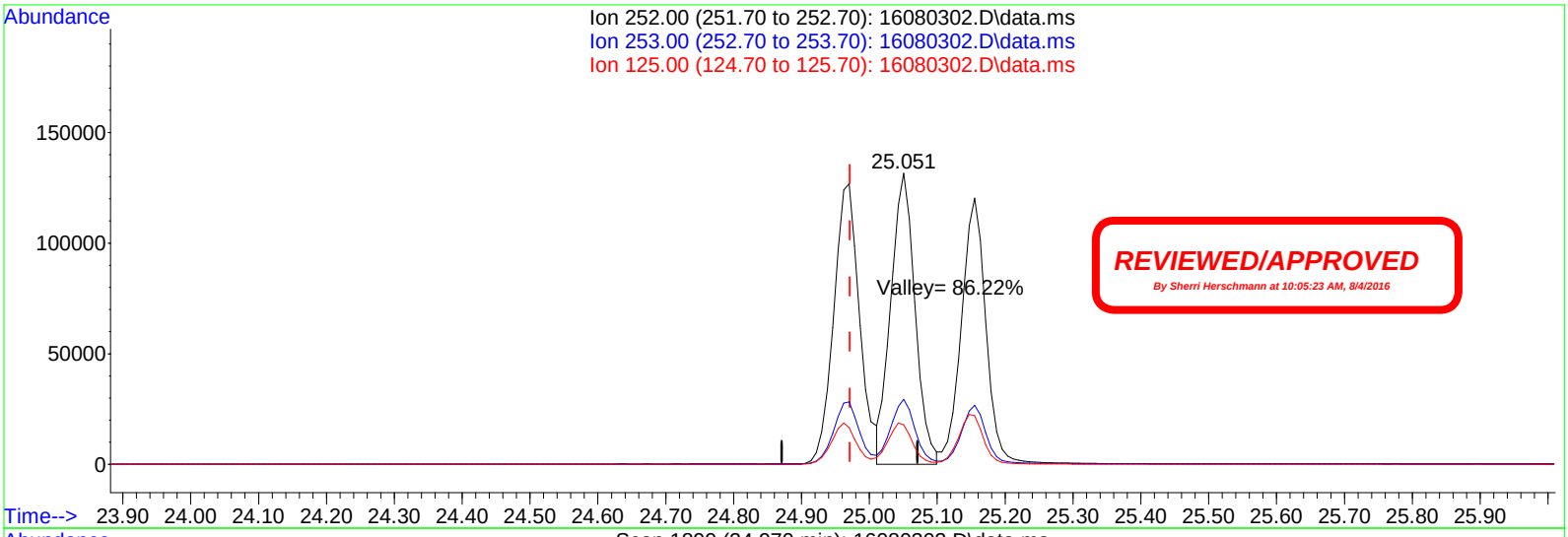
Quant Time: Aug 03 16:06:53 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 10:10:50 2016
Response via : Initial Calibration

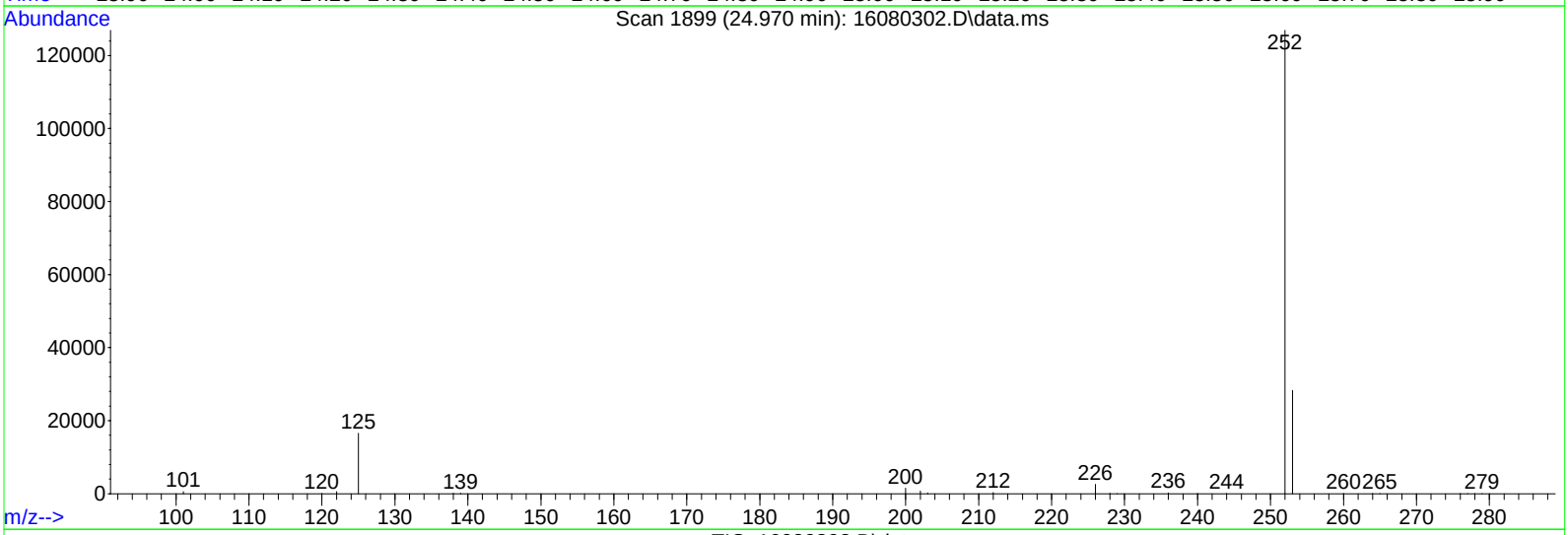


Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\160803\
Data File : 16080302.D
Acq On : 3 Aug 2016 9:09 am
Operator :
Sample : ICV-160803
Misc : ICV
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Aug 03 16:06:53 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 10:10:50 2016
Response via : Initial Calibration





TIC: 16080302.D\data.ms

(21) Benzo[b]fluoranthene (T)

24.970min (-0.001) 2095.75ug/kg

response 336445

Ion	Exp%	Act%
252.00	100	100
253.00	22.10	22.04
125.00	13.90	13.01
0.00	0.00	0.00

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160803\
Data File : 16080303.D
Acq On : 3 Aug 2016 9:49 am
Operator :
Sample : LCS-76564
Misc : LCS
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Aug 03 16:06:57 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 10:10:50 2016
Response via : Initial Calibration

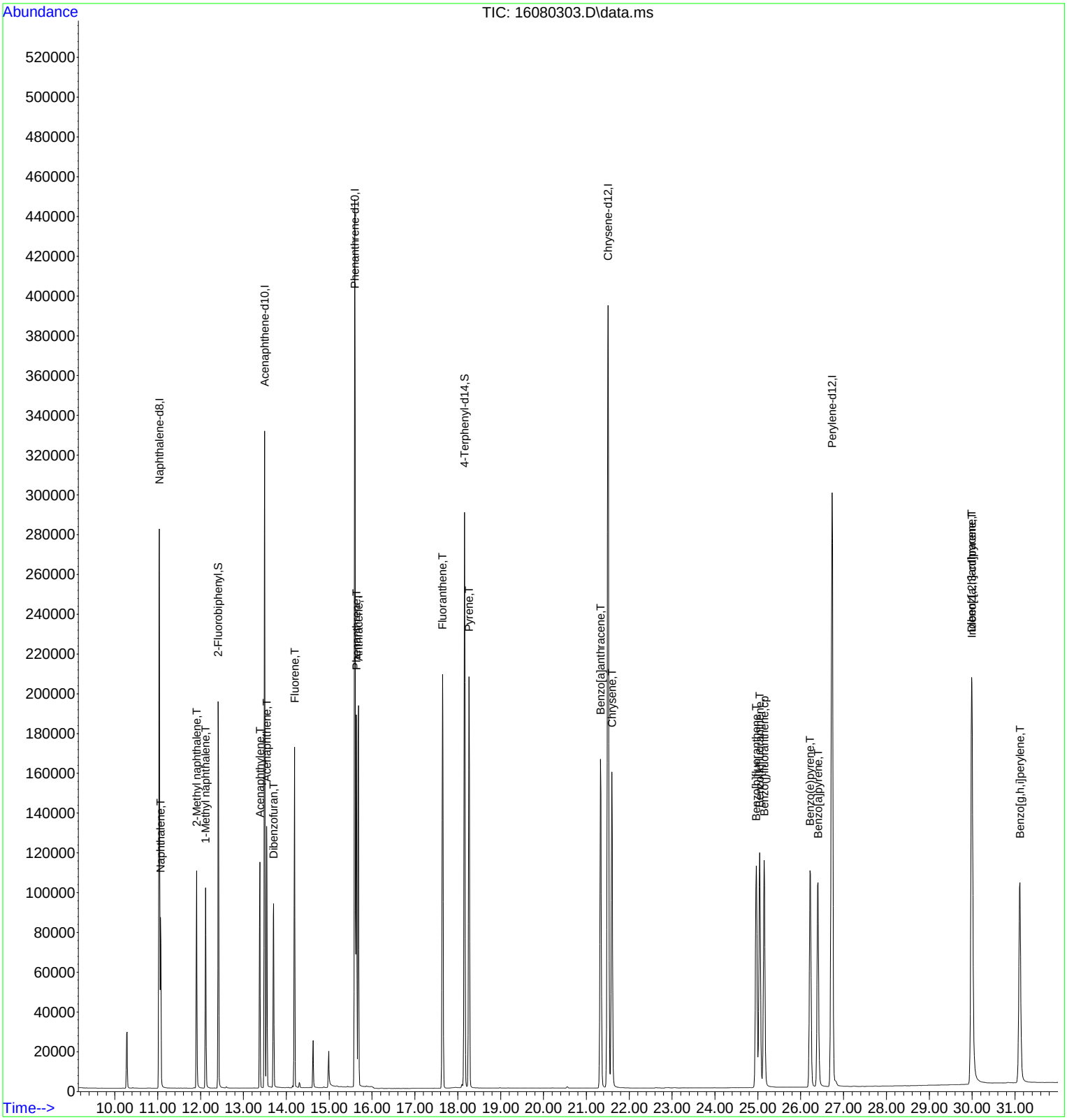
Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	11.039	136	368907	4000.00	ug/kg	94
6) Acenaphthene-d10	13.496	164	180794	4000.00	ug/kg	99
11) Phenanthrene-d10	15.597	188	514572	4000.00	ug/kg	103
17) Chrysene-d12	21.508	240	620547	4000.00	ug/kg	92
20) Perylene-d12	26.733	264	566556	4000.00	ug/kg	92
System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.410	172	160816	2628.66	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 65.72%			
15) 4-Terphenyl-d14	18.158	244	323974	2527.96	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery = 63.20%			
Target Compounds						Qvalue
2) Naphthalene	11.065	128	93399	1041.27	ug/kg	100
3) 2-Methyl naphthalene	11.907	142	59580	1055.55	ug/kg	100
4) 1-Methyl naphthalene	12.115	142	56031	1081.07	ug/kg	99
7) Acenaphthylene	13.383	152	103886	1198.46	ug/kg	100
8) Acenaphthene	13.539	153	63907	1163.69	ug/kg	100
9) Dibenzofuran	13.704	168	93926	1207.05	ug/kg	98
10) Fluorene	14.190	166	84248	1282.86	ug/kg	100
12) Phenanthrene	15.640	178	170562	1226.06	ug/kg	100
13) Anthracene	15.684	178	171191	1203.12	ug/kg	100
14) Fluoranthene	17.643	202	225310	1207.06	ug/kg	98
16) Pyrene	18.263	202	229843	1186.17	ug/kg	98
18) Benzo[a]anthracene	21.331	228	221604	1377.31	ug/kg	100
19) Chrysene	21.596	228	202551	1319.31	ug/kg	99
21) Benzo[b]fluoranthene	24.962	252	209253	1368.86	ug/kg	100
22) Benzo[k]fluoranthene	25.042	252	193018	1475.97	ug/kg	100
23) Benzo(j)fluoranthene	25.147	252	183085	1433.38	ug/kg	100
24) Benzo(e)pyrene	26.226	252	202065	1366.00	ug/kg	100
25) Benzo[a]pyrene	26.403	252	194973	1388.89	ug/kg	98
26) Indeno[1,2,3-cd]pyrene	30.002	276	235137	1418.25	ug/kg	93
27) Dibenz[a,h]anthracene	29.986	278	190770	1399.38	ug/kg	99
28) Benzo[g,h,i]perylene	31.113	276	198941	1366.02	ug/kg	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160803\
Data File : 16080303.D
Acq On : 3 Aug 2016 9:49 am
Operator :
Sample : LCS-76564
Misc : LCS
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Aug 03 16:06:57 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 10:10:50 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160803\
Data File : 16080305.D
Acq On : 3 Aug 2016 11:08 am
Operator :
Sample : MB-76564
Misc : MBLK
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Aug 03 16:07:03 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 10:10:50 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	11.039	136	371236	4000.00	ug/kg	95
6) Acenaphthene-d10	13.496	164	187440	4000.00	ug/kg	103
11) Phenanthrene-d10	15.597	188	516421	4000.00	ug/kg	103
17) Chrysene-d12	21.508	240	618317	4000.00	ug/kg	92
20) Perylene-d12	26.733	264	568486	4000.00	ug/kg	93

System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.411	172	176201	2862.07	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 71.55%			
15) 4-Terphenyl-d14	18.159	244	324574	2523.58	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery = 63.09%			

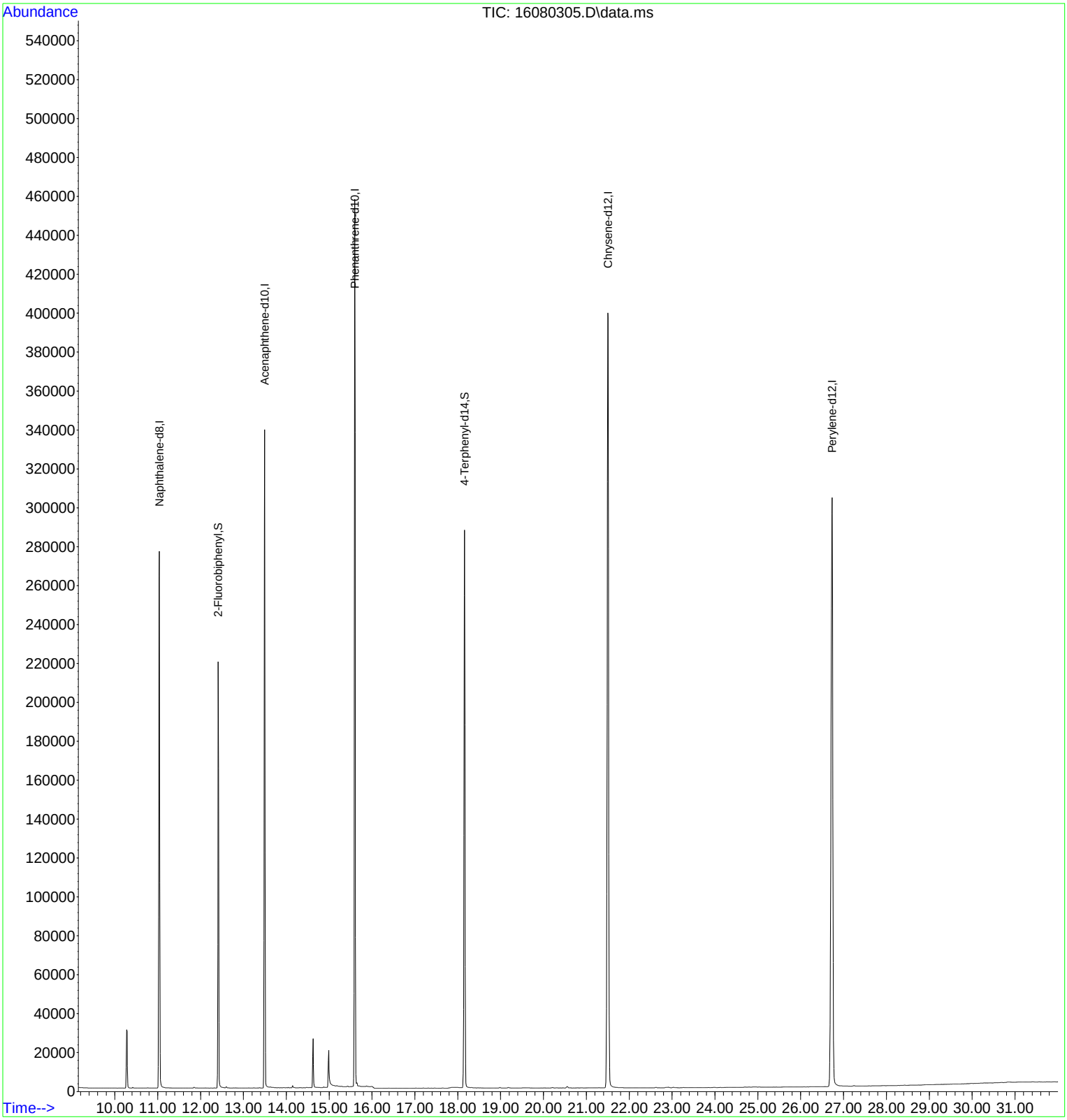
Target Compounds	Qvalue

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160803\
Data File : 16080305.D
Acq On : 3 Aug 2016 11:08 am
Operator :
Sample : MB-76564
Misc : MBLK
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Aug 03 16:07:03 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 10:10:50 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160803\
Data File : 16080319.D
Acq On : 3 Aug 2016 8:27 pm
Operator :
Sample : ICV2-160803
Misc : ICV
ALS Vial : 19 Sample Multiplier: 1

Quant Time: Aug 04 09:01:43 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 16:07:35 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	11.042	136	387288	4000.00	ug/kg	99
6) Acenaphthene-d10	13.499	164	209956	4000.00	ug/kg	115
11) Phenanthrene-d10	15.608	188	609657	4000.00	ug/kg	122
17) Chrysene-d12	21.516	240	657322	4000.00	ug/kg	98
20) Perylene-d12	26.741	264	594208	4000.00	ug/kg	97

System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.422	172	130518	2032.16	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 50.80%			
15) 4-Terphenyl-d14	18.167	244	251408	1655.77	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery = 41.39%#			

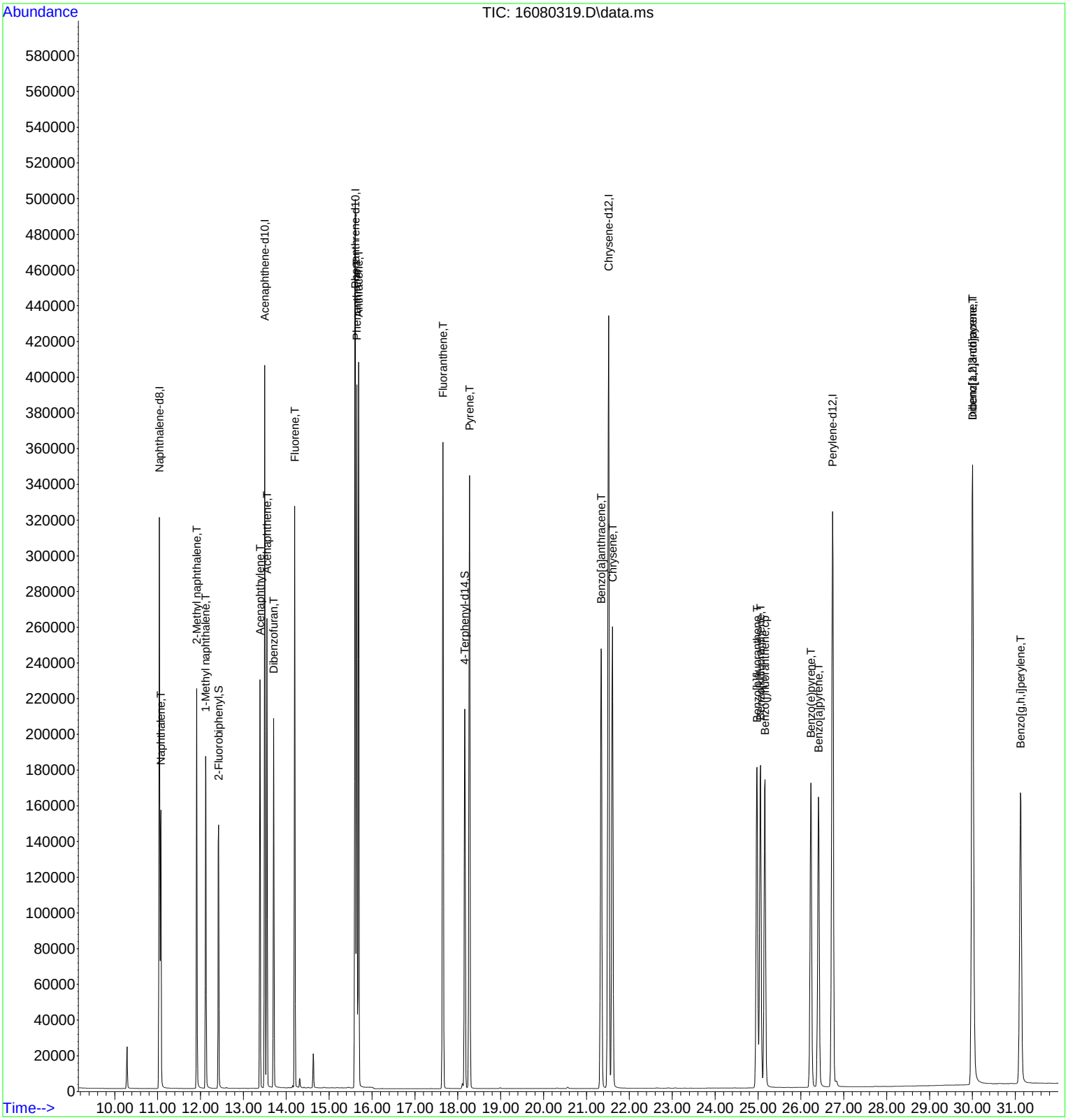
Target Compounds						Qvalue
2) Naphthalene	11.076	128	177263	1882.44	ug/kg	99
3) 2-Methyl naphthalene	11.910	142	119739	2020.67	ug/kg	100
4) 1-Methyl naphthalene	12.127	142	110170	2024.75	ug/kg	95
7) Acenaphthylene	13.386	152	200745	1994.19	ug/kg	99
8) Acenaphthene	13.551	153	125065	1961.01	ug/kg	97
9) Dibenzofuran	13.707	168	186459	2063.38	ug/kg	89
10) Fluorene	14.193	166	168105	2204.22	ug/kg	99
12) Phenanthrene	15.643	178	328719	1994.40	ug/kg	99
13) Anthracene	15.687	178	314489	1865.50	ug/kg	99
14) Fluoranthene	17.651	202	379720	1717.00	ug/kg	99
16) Pyrene	18.271	202	383475	1670.38	ug/kg	99
18) Benzo[a]anthracene	21.347	228	352868	2070.44	ug/kg	100
19) Chrysene	21.605	228	326961	2010.51	ug/kg	100
21) Benzo[b]fluoranthene	24.978	252	339971	2120.48	ug/kg	99
22) Benzo[k]fluoranthene	25.059	252	304117	2217.30	ug/kg	99
23) Benzo(j)fluoranthene	25.163	252	287778	2148.18	ug/kg	100
24) Benzo(e)pyrene	26.234	252	314023	2024.07	ug/kg	100
25) Benzo[a]pyrene	26.411	252	305106	2072.28	ug/kg	99
26) Indeno[1,2,3-cd]pyrene	30.010	276	377399	2170.39	ug/kg	97
27) Dibenz[a,h]anthracene	30.002	278	313771	2194.54	ug/kg	98
28) Benzo[g,h,i]perylene	31.121	276	321130	2102.41	ug/kg	97

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160803\
Data File : 16080319.D
Acq On : 3 Aug 2016 8:27 pm
Operator :
Sample : ICV2-160803
Misc : ICV
ALS Vial : 19 Sample Multiplier: 1

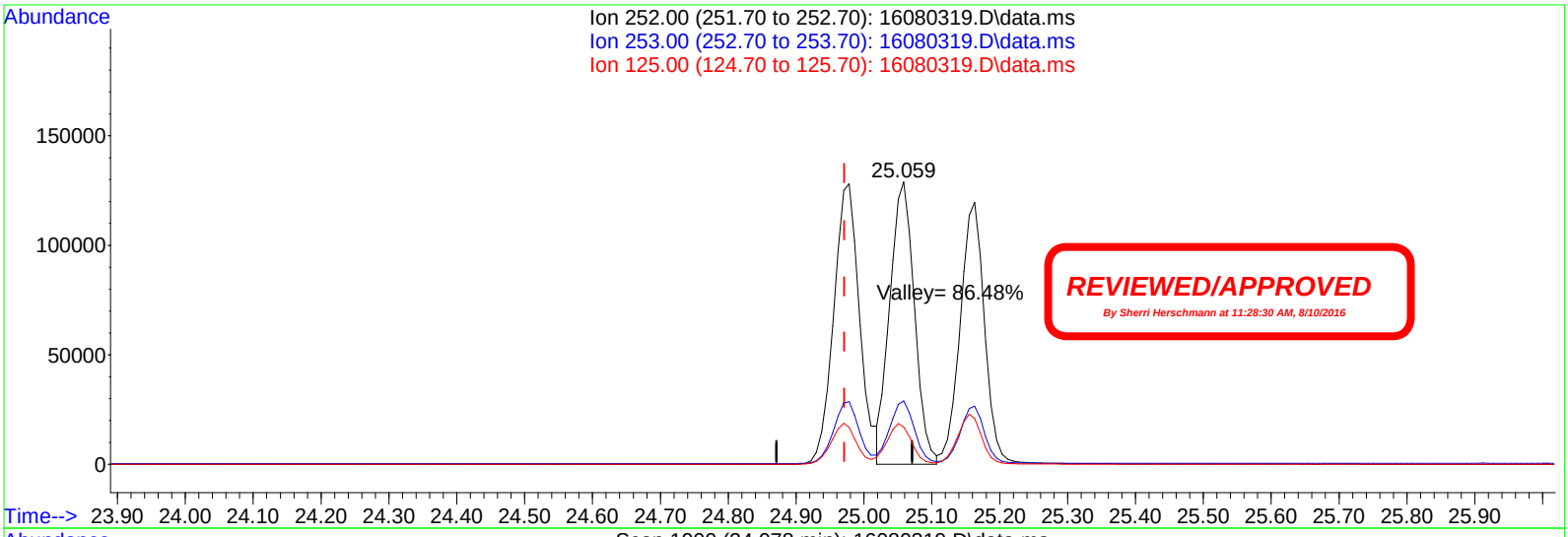
Quant Time: Aug 04 09:01:43 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 16:07:35 2016
Response via : Initial Calibration

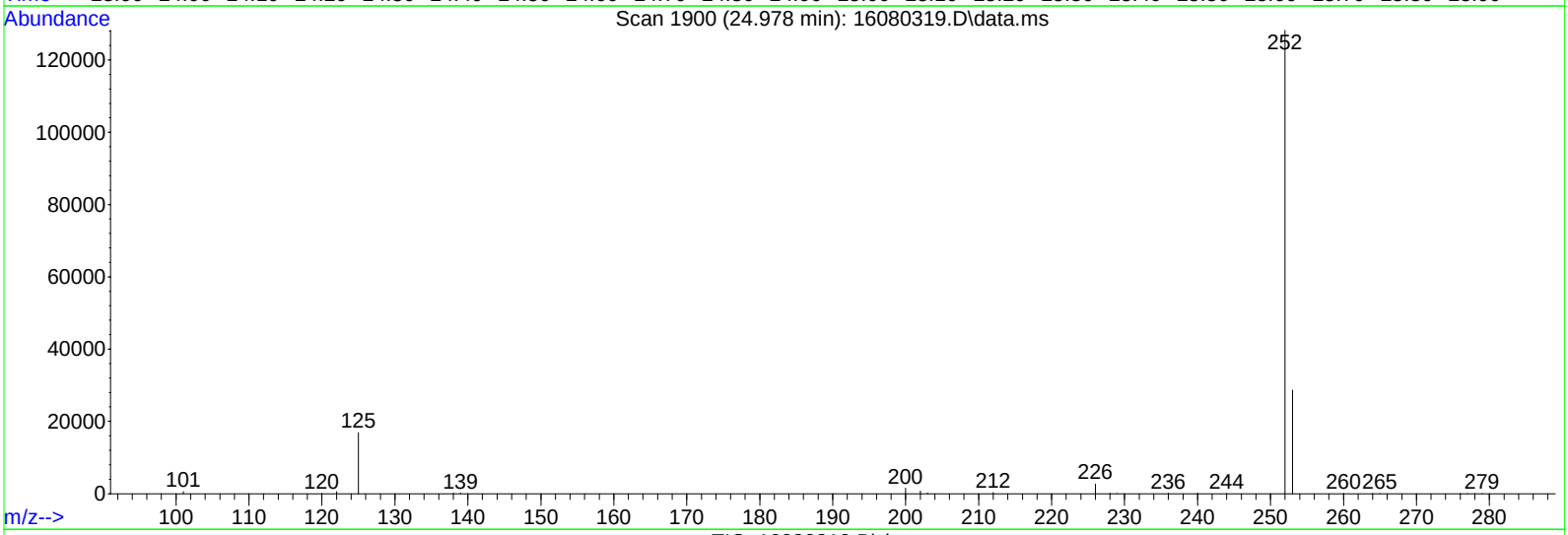


Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\160803\
Data File : 16080319.D
Acq On : 3 Aug 2016 8:27 pm
Operator :
Sample : ICV2-160803
Misc : ICV
ALS Vial : 19 Sample Multiplier: 1

Quant Time: Aug 04 09:01:43 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 16:07:35 2016
Response via : Initial Calibration





TIC: 16080319.D\data.ms

(21) Benzo[b]fluoranthene (T)

24.978min (+0.007) 2120.48ug/kg

response 339971

Ion	Exp%	Act%
252.00	100	100
253.00	22.10	22.03
125.00	13.90	13.12
0.00	0.00	0.00

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160803\
Data File : 16080321.D
Acq On : 3 Aug 2016 9:47 pm
Operator :
Sample : SBLK-160803
Misc : SBLK
ALS Vial : 21 Sample Multiplier: 1

Quant Time: Aug 04 09:01:46 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 16:07:35 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	11.039	136	341177	4000.00	ug/kg	87
6) Acenaphthene-d10	13.496	164	221523	4000.00	ug/kg	121
11) Phenanthrene-d10	15.606	188	589500	4000.00	ug/kg	118
17) Chrysene-d12	21.509	240	575268	4000.00	ug/kg	85
20) Perylene-d12	26.734	264	532525	4000.00	ug/kg	87

System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.428	172	45	0.80	ug/kg	0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery = 0.02%#			
15) 4-Terphenyl-d14	18.159	244	243	1.66	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery = 0.04%#			

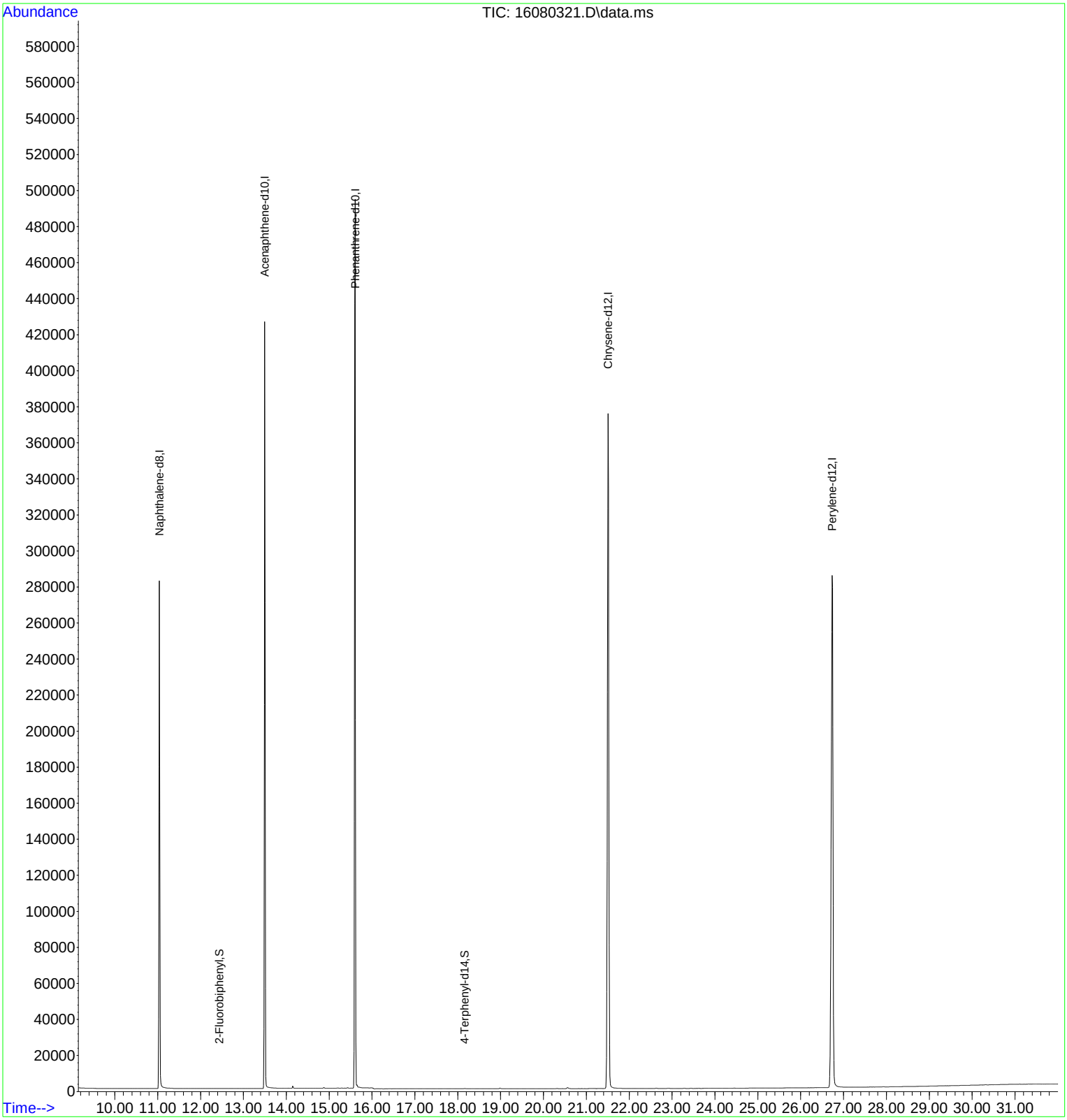
Target Compounds	Qvalue

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160803\
Data File : 16080321.D
Acq On : 3 Aug 2016 9:47 pm
Operator :
Sample : SBLK-160803
Misc : SBLK
ALS Vial : 21 Sample Multiplier: 1

Quant Time: Aug 04 09:01:46 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 16:07:35 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160803\
Data File : 16080324.D
Acq On : 3 Aug 2016 11:46 pm
Operator :
Sample : 1607337-13B
Misc : SAMP
ALS Vial : 24 Sample Multiplier: 1

Quant Time: Aug 04 09:01:17 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 16:07:35 2016
Response via : Initial Calibration

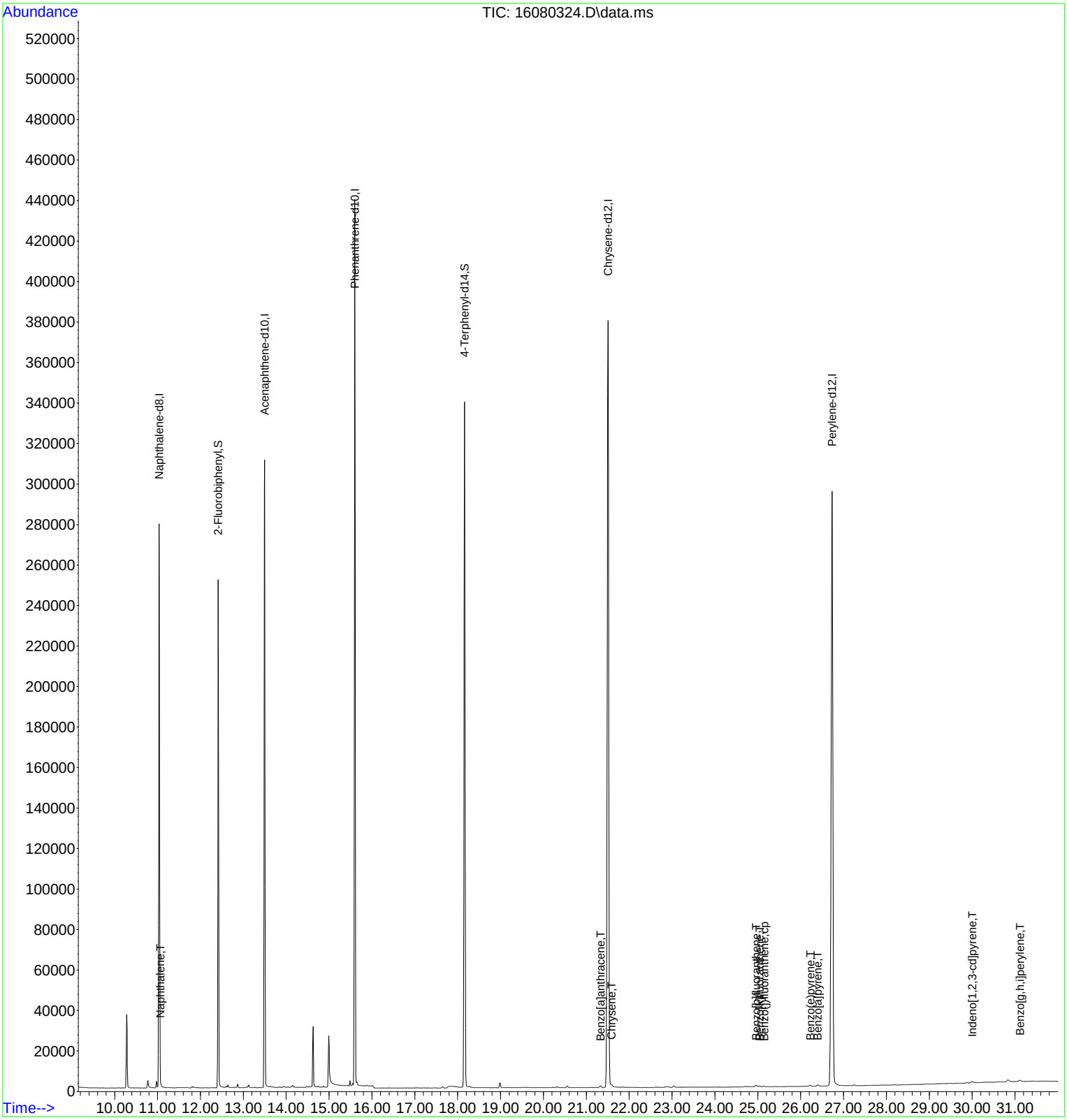
Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	11.033	136	362700	4000.00	ug/kg	92
6) Acenaphthene-d10	13.499	164	180465	4000.00	ug/kg	99
11) Phenanthrene-d10	15.600	188	497067	4000.00	ug/kg	100
17) Chrysene-d12	21.508	240	577132	4000.00	ug/kg	86
20) Perylene-d12	26.734	264	536315	4000.00	ug/kg	88
System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.414	172	193108	3210.52	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 80.26%			
15) 4-Terphenyl-d14	18.159	244	376104	3038.08	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery = 75.95%			
Target Compounds						Qvalue
2) Naphthalene	11.068	128	726	8.23	ug/kg	79
18) Benzo[a]anthracene	21.331	228	1105	7.38	ug/kg	99
19) Chrysene	21.597	228	1164	8.15	ug/kg	99
21) Benzo[b]fluoranthene	24.962	252	1576	10.89	ug/kg	100
22) Benzo[k]fluoranthene	25.043	252	693	5.60	ug/kg	94
23) Benzo(j)fluoranthene	25.147	252	634	5.24	ug/kg	90
24) Benzo(e)pyrene	26.218	252	1128	8.06	ug/kg	88
25) Benzo[a]pyrene	26.395	252	1334	10.04	ug/kg	92
26) Indeno[1,2,3-cd]pyrene	30.003	276	1299	8.28	ug/kg	85
28) Benzo[g,h,i]perylene	31.114	276	1309	9.50	ug/kg	97

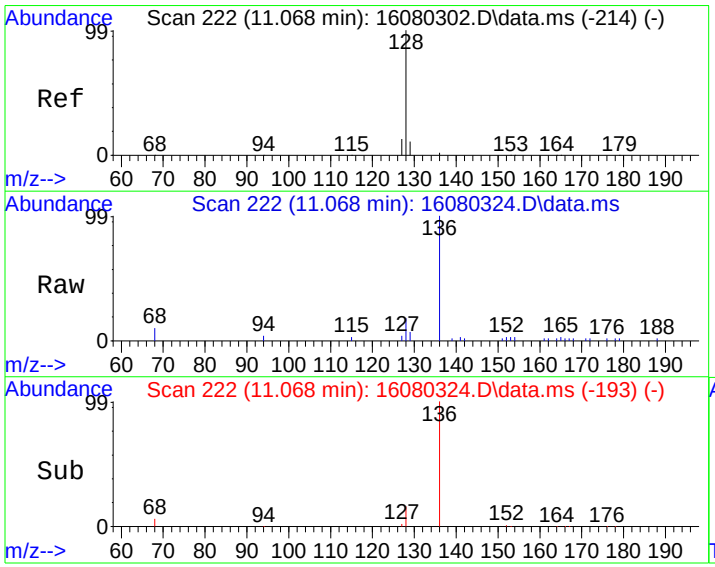
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160803\
Data File : 16080324.D
Acq On : 3 Aug 2016 11:46 pm
Operator :
Sample : 1607337-13B
Misc : SAMP
ALS Vial : 24 Sample Multiplier: 1

Quant Time: Aug 04 09:01:17 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 16:07:35 2016
Response via : Initial Calibration

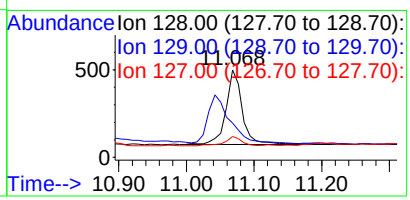


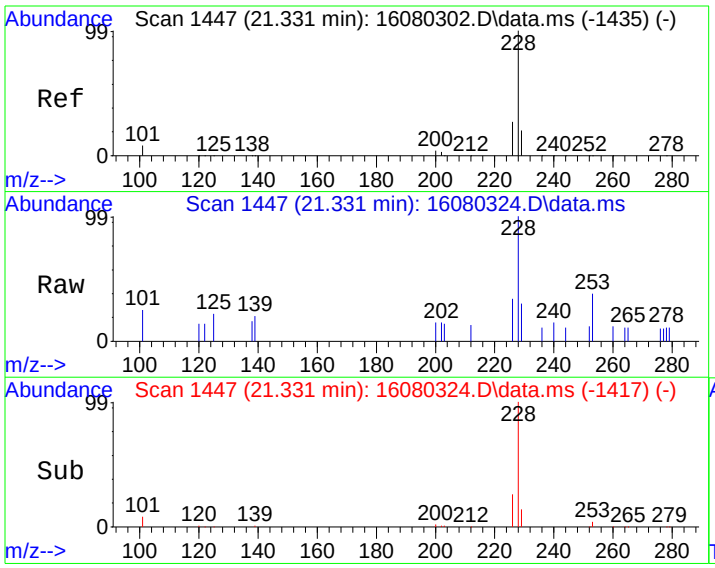


#2
Naphthalene
Concen: 8.23 ug/kg
RT: 11.068 min Scan# 222
Delta R.T. 0.001 min
Lab File: 16080324.D
Acq: 3 Aug 2016 11:46 pm

Tgt Ion:128 Resp: 726

Ion	Ratio	Lower	Upper
128	100		
129	27.2	0.0	31.0
127	12.2	0.0	33.0

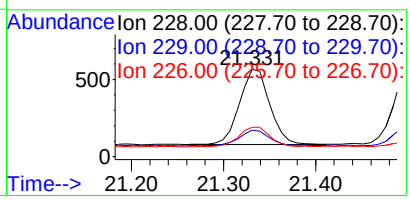


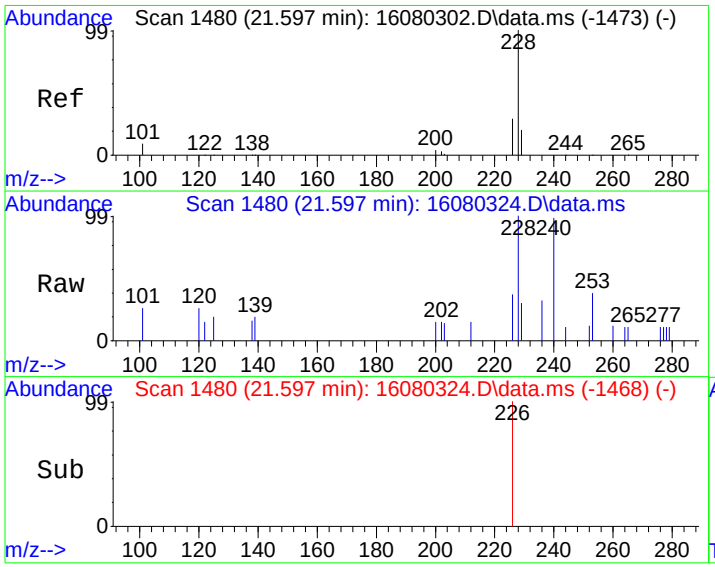


#18
Benzo[a]anthracene
Concen: 7.38 ug/kg
RT: 21.331 min Scan# 1447
Delta R.T. -0.008 min
Lab File: 16080324.D
Acq: 3 Aug 2016 11:46 pm

Tgt Ion:228 Resp: 1105

Ion	Ratio	Lower	Upper
228	100		
229	20.6	0.0	39.9
226	25.9	6.5	46.5

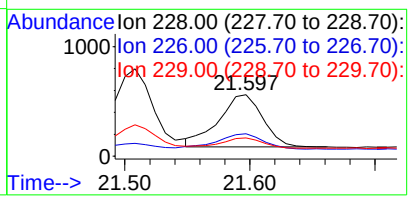


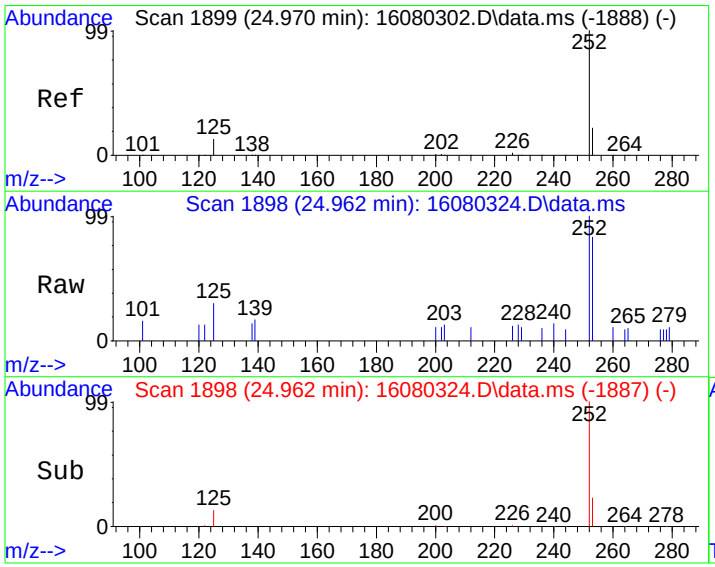


#19
Chrysene
Concen: 8.15 ug/kg
RT: 21.597 min Scan# 1480
Delta R.T. -0.000 min
Lab File: 16080324.D
Acq: 3 Aug 2016 11:46 pm

Tgt Ion:228 Resp: 1164

Ion	Ratio	Lower	Upper
228	100		
226	29.5	9.5	49.5
229	19.4	0.0	40.0

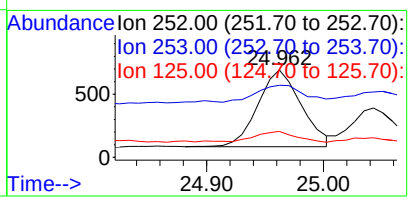


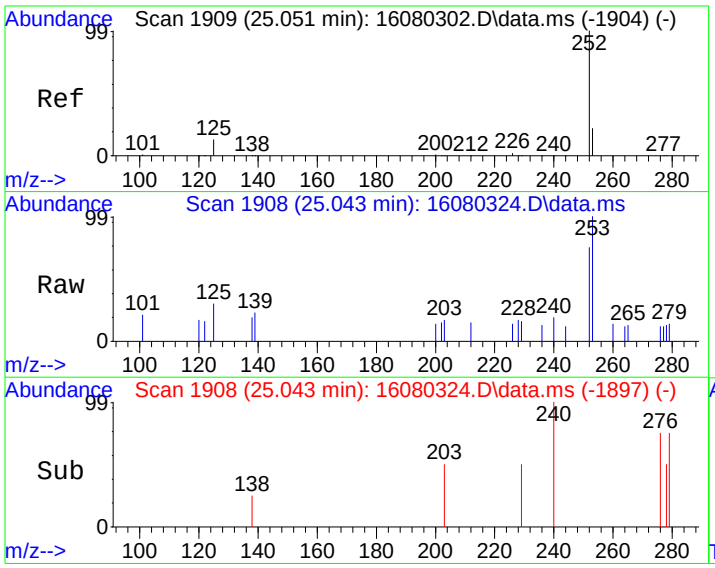


#21
Benzo[b]fluoranthene
Concen: 10.89 ug/kg
RT: 24.962 min Scan# 1898
Delta R.T. -0.009 min
Lab File: 16080324.D
Acq: 3 Aug 2016 11:46 pm

Tgt Ion:252 Resp: 1576

Ion	Ratio	Lower	Upper
252	100		
253	22.0	2.1	42.1
125	14.1	0.0	33.9

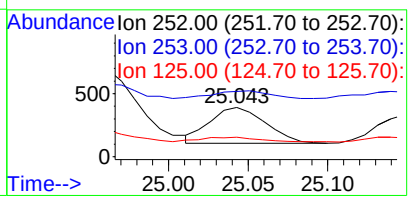


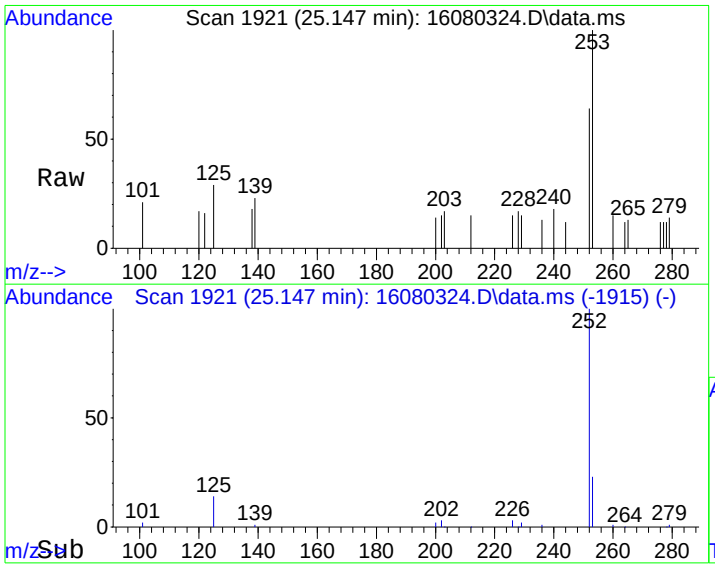


#22
Benzo[k]fluoranthene
Concen: 5.60 ug/kg
RT: 25.043 min Scan# 1908
Delta R.T. -0.008 min
Lab File: 16080324.D
Acq: 3 Aug 2016 11:46 pm

Tgt Ion:252 Resp: 693

Ion	Ratio	Lower	Upper
252	100		
253	18.7	2.2	42.2
125	12.7	0.0	34.0

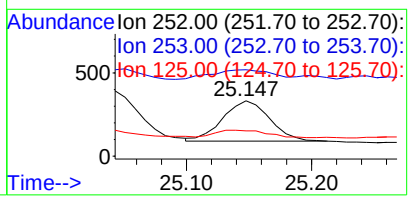


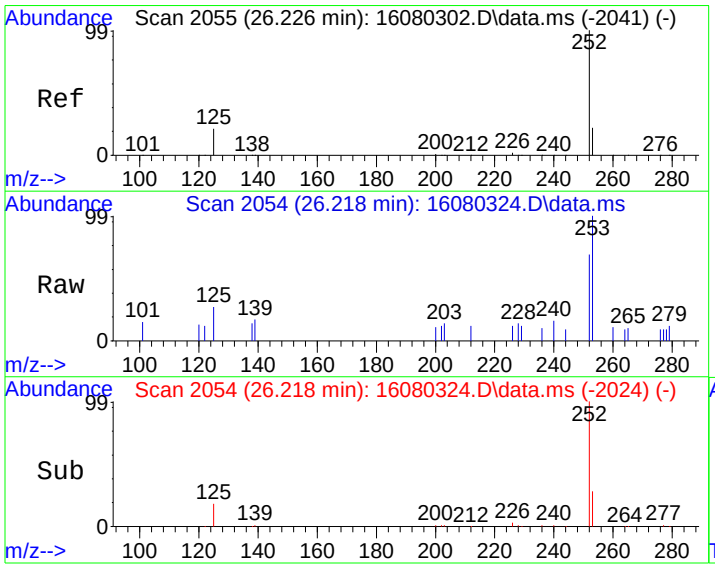


#23
Benzo(j)fluoranthene
Concen: 5.24 ug/kg
RT: 25.147 min Scan# 1921
Delta R.T. -0.009 min
Lab File: 16080324.D
Acq: 3 Aug 2016 11:46 pm

Tgt Ion:252 Resp: 634

Ion	Ratio	Lower	Upper
252	100		
253	30.1	2.0	42.0
125	20.3	0.0	39.3

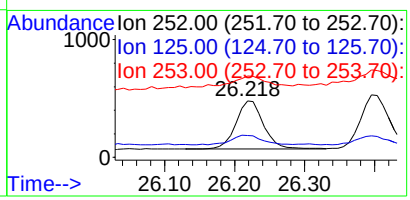


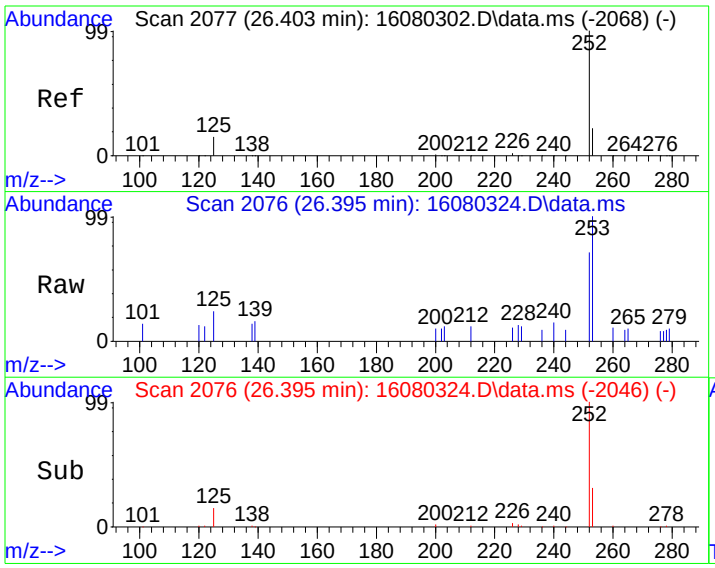


#24
Benzo(e)pyrene
Concen: 8.06 ug/kg
RT: 26.218 min Scan# 2054
Delta R.T. -0.009 min
Lab File: 16080324.D
Acq: 3 Aug 2016 11:46 pm

Tgt Ion:252 Resp: 1128

Ion	Ratio	Lower	Upper
252	100		
125	22.7	0.5	40.5
253	30.9	2.1	42.1

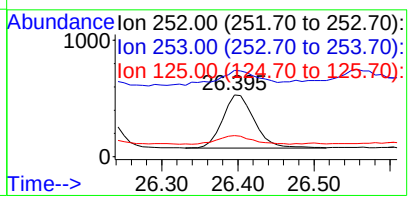


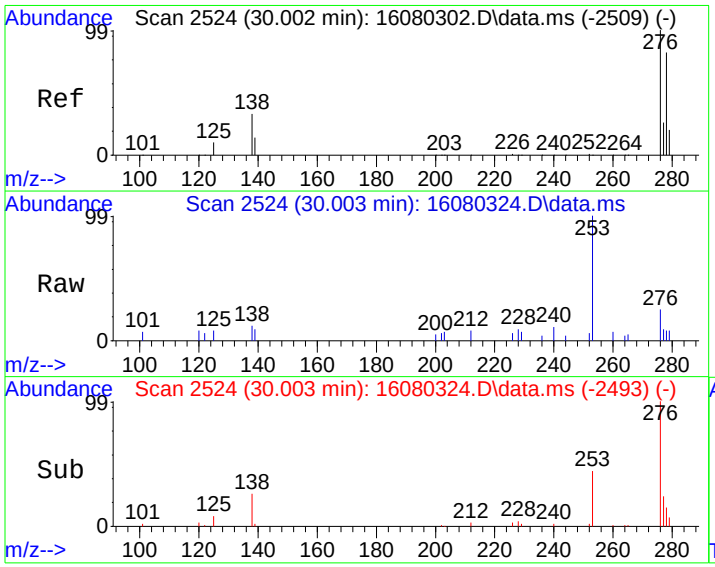


#25
Benzo[a]pyrene
Concen: 10.04 ug/kg
RT: 26.395 min Scan# 2076
Delta R.T. -0.009 min
Lab File: 16080324.D
Acq: 3 Aug 2016 11:46 pm

Tgt Ion:252 Resp: 1334

Ion	Ratio	Lower	Upper
252	100		
253	28.4	2.1	42.1
125	15.8	0.0	36.2

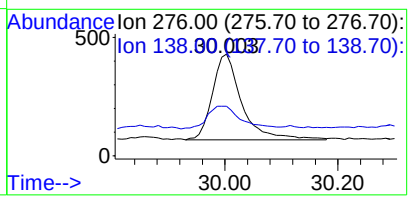


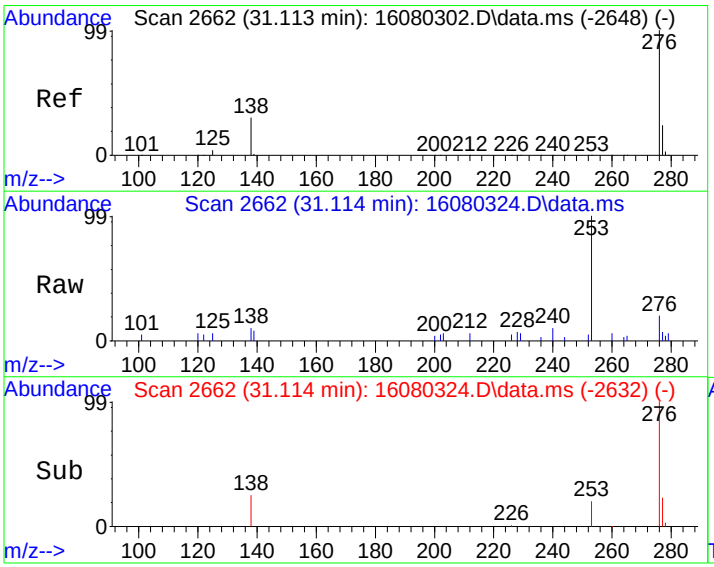


#26
Indeno[1,2,3-cd]pyrene
Concen: 8.28 ug/kg
RT: 30.003 min Scan# 2524
Delta R.T. -0.000 min
Lab File: 16080324.D
Acq: 3 Aug 2016 11:46 pm

Tgt Ion:276 Resp: 1299

Ion	Ratio	Lower	Upper
276	100		
138	25.4	14.0	54.0

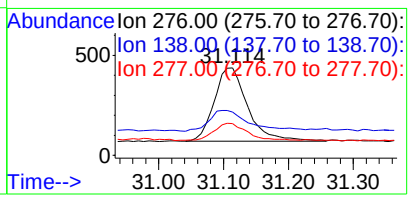




#28
Benzo[g,h,i]perylene
Concen: 9.50 ug/kg
RT: 31.114 min Scan# 2662
Delta R.T. -0.008 min
Lab File: 16080324.D
Acq: 3 Aug 2016 11:46 pm

Tgt Ion:276 Resp: 1309

Ion	Ratio	Lower	Upper
276	100		
138	26.2	7.8	47.8
277	23.0	4.1	44.1



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160803\
Data File : 16080325.D
Acq On : 4 Aug 2016 12:26 am
Operator :
Sample : 1607337-26B
Misc : SAMP
ALS Vial : 25 Sample Multiplier: 1

Quant Time: Aug 04 09:01:23 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 16:07:35 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	11.040	136	458663	4000.00	ug/kg	117
6) Acenaphthene-d10	13.497	164	219735	4000.00	ug/kg	120
11) Phenanthrene-d10	15.606	188	561471	4000.00	ug/kg	112
17) Chrysene-d12	21.509	240	683071	4000.00	ug/kg	101
20) Perylene-d12	26.742	264	657180	4000.00	ug/kg	107

System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.420	172	233397	3068.48	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 76.71%			
15) 4-Terphenyl-d14	18.159	244	394794	2823.25	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery = 70.58%			

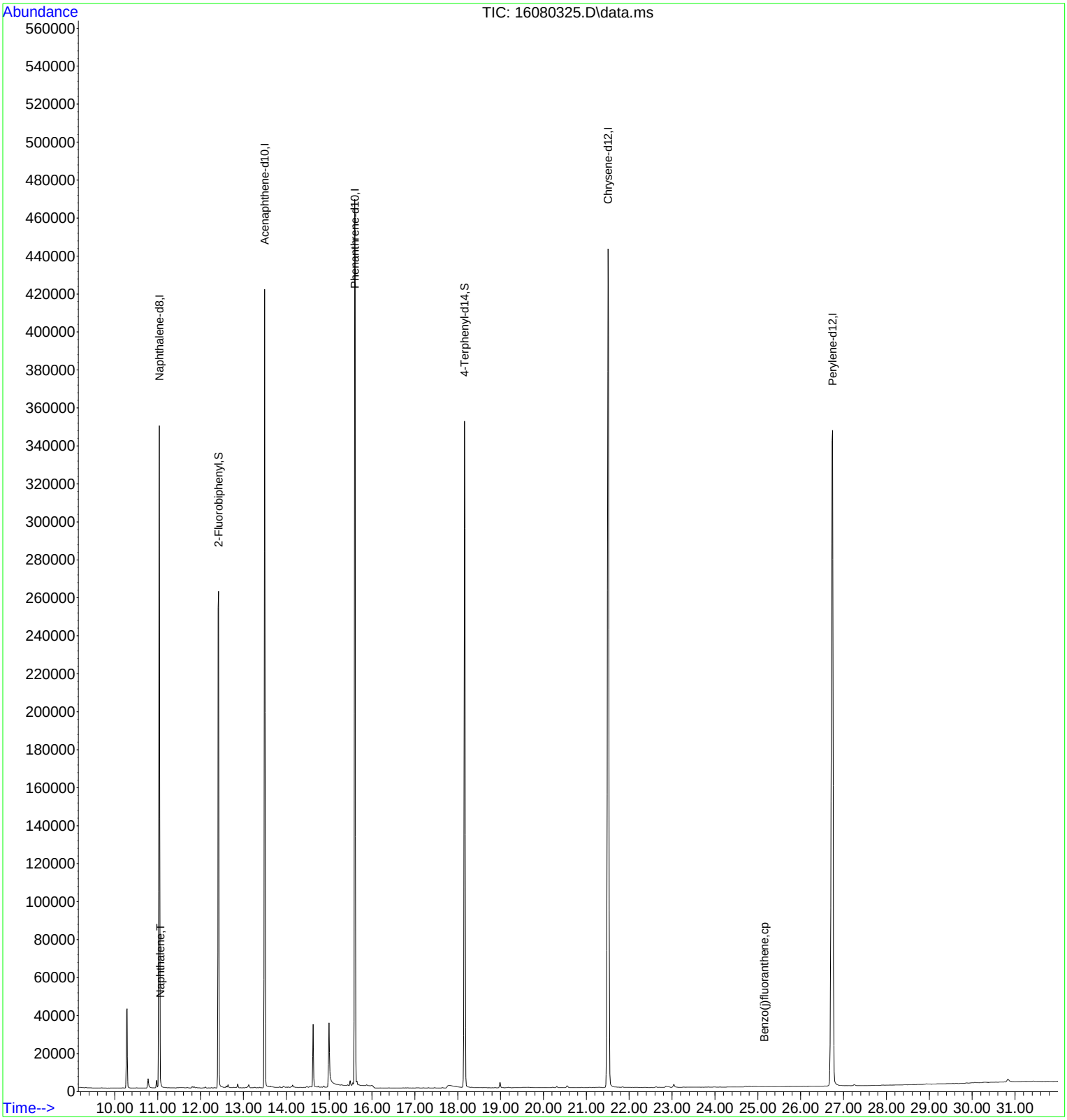
Target Compounds						Qvalue
2) Naphthalene	11.066	128	923	8.28	ug/kg	78
23) Benzo(j)fluoranthene	25.148	252	67	0.45	ug/kg	80

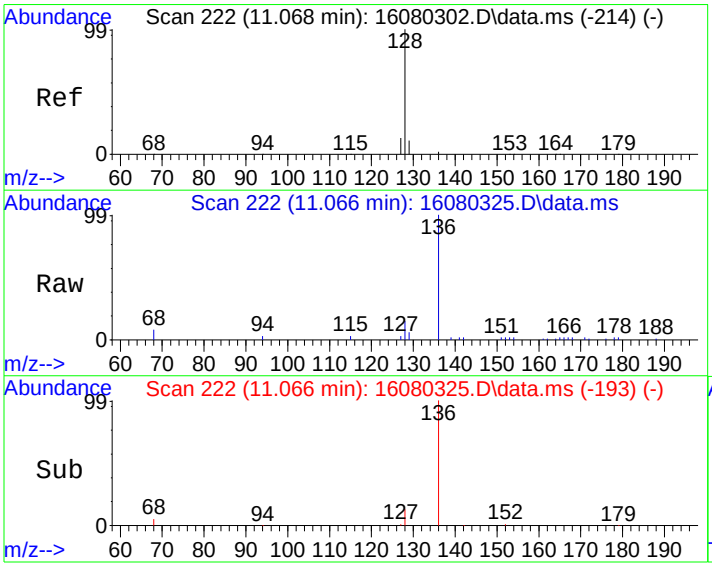
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160803\
Data File : 16080325.D
Acq On : 4 Aug 2016 12:26 am
Operator :
Sample : 1607337-26B
Misc : SAMP
ALS Vial : 25 Sample Multiplier: 1

Quant Time: Aug 04 09:01:23 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 16:07:35 2016
Response via : Initial Calibration

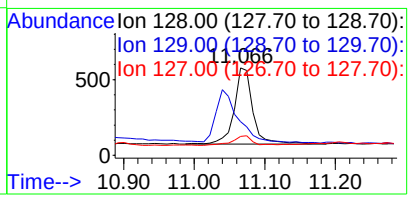


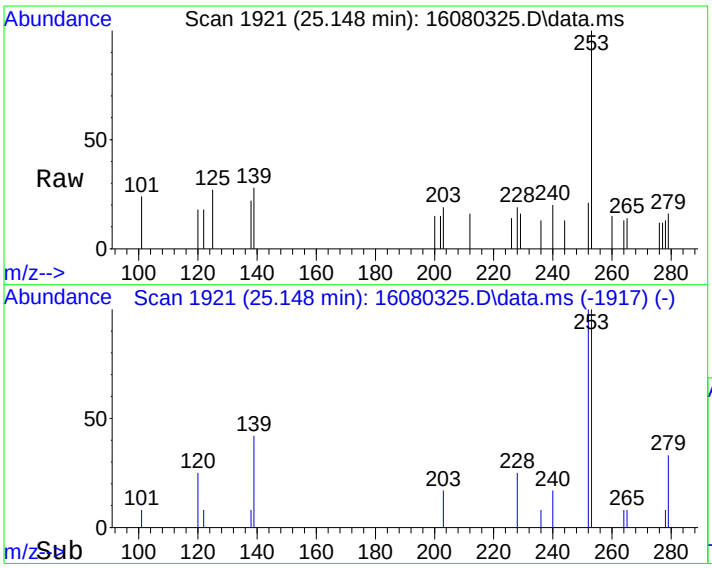


#2
Naphthalene
Concen: 8.28 ug/kg
RT: 11.066 min Scan# 222
Delta R.T. -0.001 min
Lab File: 16080325.D
Acq: 4 Aug 2016 12:26 am

Tgt Ion:128 Resp: 923

Ion	Ratio	Lower	Upper
128	100		
129	27.0	0.0	31.0
127	11.1	0.0	33.0

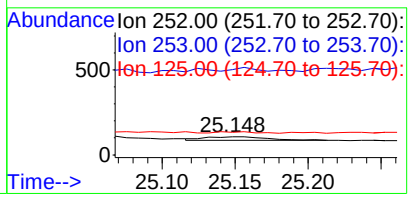




#23
Benzo(j)fluoranthene
Concen: 0.45 ug/kg
RT: 25.148 min Scan# 1921
Delta R.T. -0.008 min
Lab File: 16080325.D
Acq: 4 Aug 2016 12:26 am

Tgt Ion:252 Resp: 67

Ion	Ratio	Lower	Upper
252	100		
253	34.3	2.0	42.0
125	25.4	0.0	39.3



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160803\
Data File : 16080327.D
Acq On : 4 Aug 2016 1:45 am
Operator :
Sample : CCV-160803
Misc : CCV
ALS Vial : 27 Sample Multiplier: 1

Quant Time: Aug 04 09:01:49 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 16:07:35 2016
Response via : Initial Calibration

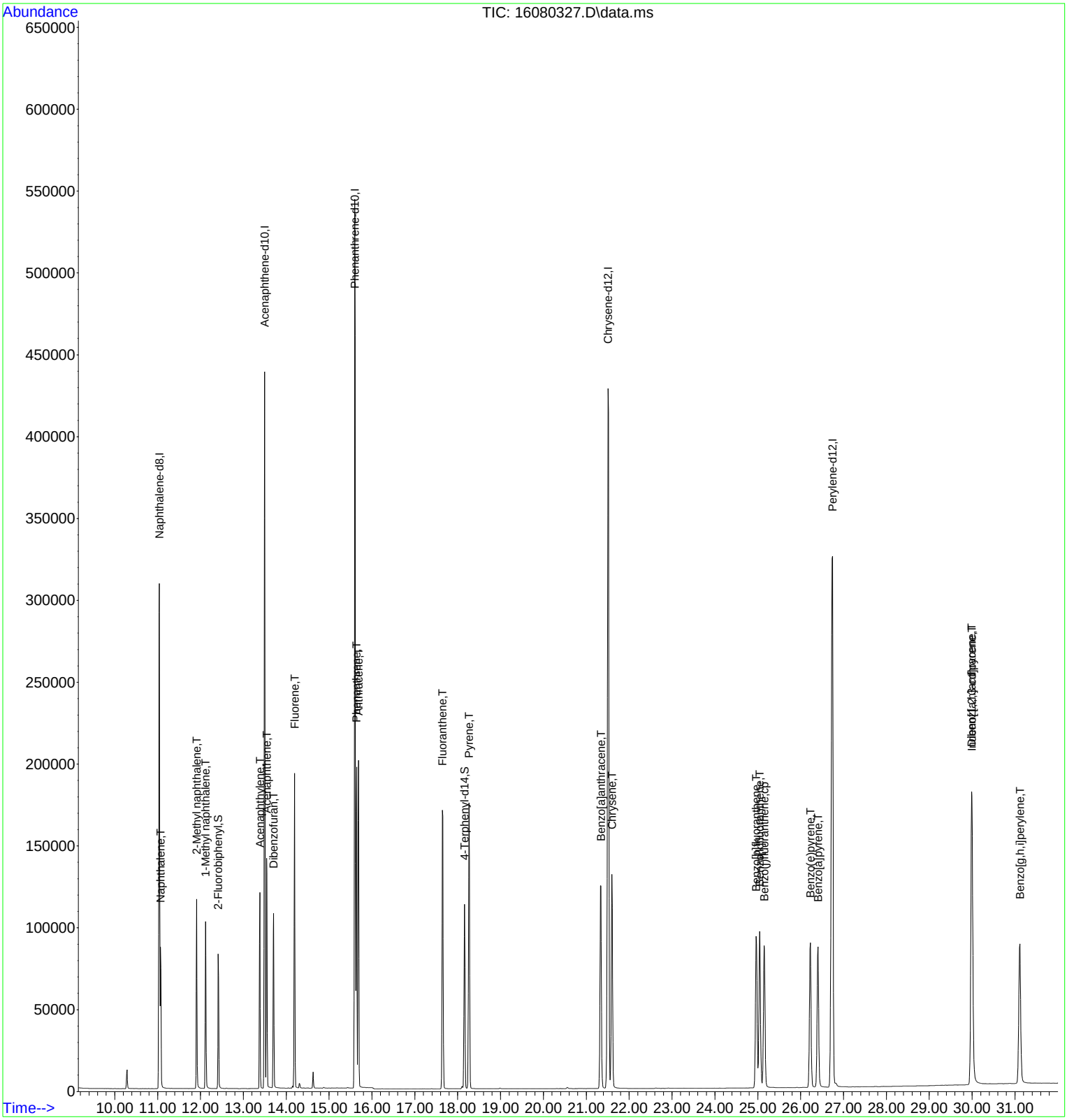
Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	11.041	136	409391	4000.00	ug/kg	104
6) Acenaphthene-d10	13.498	164	237519	4000.00	ug/kg	130
11) Phenanthrene-d10	15.599	188	651082	4000.00	ug/kg	130
17) Chrysene-d12	21.509	240	671659	4000.00	ug/kg	100
20) Perylene-d12	26.743	264	627164	4000.00	ug/kg	102
System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.413	172	70807	1042.94	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 26.07%#			
15) 4-Terphenyl-d14	18.160	244	124759	769.38	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery = 19.23%#			
Target Compounds						Qvalue
2) Naphthalene	11.067	128	92674	931.01	ug/kg	100
3) 2-Methyl naphthalene	11.909	142	63055	1006.64	ug/kg	100
4) 1-Methyl naphthalene	12.118	142	58193	1011.75	ug/kg	100
7) Acenaphthylene	13.385	152	111325	977.56	ug/kg	100
8) Acenaphthene	13.541	153	69742	966.65	ug/kg	100
9) Dibenzofuran	13.706	168	106268	1039.51	ug/kg	97
10) Fluorene	14.193	166	94669	1097.27	ug/kg	100
12) Phenanthrene	15.642	178	166343	945.02	ug/kg	100
13) Anthracene	15.686	178	171132	950.54	ug/kg	100
14) Fluoranthene	17.644	202	190210	805.36	ug/kg	99
16) Pyrene	18.264	202	190806	778.25	ug/kg	98
18) Benzo[a]anthracene	21.340	228	175783	1009.38	ug/kg	99
19) Chrysene	21.598	228	165503	995.97	ug/kg	99
21) Benzo[b]fluoranthene	24.963	252	169176	999.74	ug/kg	99
22) Benzo[k]fluoranthene	25.044	252	159278	1100.26	ug/kg	100
23) Benzo(j)fluoranthene	25.148	252	148663	1051.41	ug/kg	99
24) Benzo(e)pyrene	26.227	252	159582	974.55	ug/kg	100
25) Benzo[a]pyrene	26.404	252	158866	1022.32	ug/kg	98
26) Indeno[1,2,3-cd]pyrene	30.003	276	199081	1084.74	ug/kg	92
27) Dibenz[a,h]anthracene	29.987	278	165023	1093.53	ug/kg	100
28) Benzo[g,h,i]perylene	31.115	276	169994	1054.46	ug/kg	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160803\
Data File : 16080327.D
Acq On : 4 Aug 2016 1:45 am
Operator :
Sample : CCV-160803
Misc : CCV
ALS Vial : 27 Sample Multiplier: 1

Quant Time: Aug 04 09:01:49 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 16:07:35 2016
Response via : Initial Calibration



GCMS8_160809A
For

DHL Work Order
1607337

Lab Data Review Check List
EPA Method 8270 / 625 - PAH: Polynuclear Aromatic Hydrocarbons

SEE RUN LOG FOR ALL PROJECT AND BATCH NUMBERS AND MATRICES	Run ID: GCMS8_160809A
Batch Number(s): See Run Log. Matrix: See Run Log.	SOP: ORGANICS-PAH-01

Review Item	Yes	No	N/A	2nd Level Review
Data Folder Contents 1. Is the Prep Batch Report included? Check and record the following: ***Prep Start/End Dates, Sample Amounts, Bottle #s***	X			x
2. Are the reagents and spikes listed on the Prep Batch Report current with a valid expiration date? ***All standard/QC sample preparations shall be documented in LIMS***	X			
3. Is the Run Log and instrument sequence included? ***Check the Test Code, Sample Type, Batch ID, and Analysis Date/Time***	X			
4. Is the System Verification - Tune Report included? ***Date/Tme of Tune starts 12-hour analysis window***	X			
5. Is the Evaluate Continuing Calibration Report included?	X			

Daily Demonstration of Performance

QC items that do not meet method/SOP/project requirements will be described on the run log. All variances that impact data quality will be described in the Variance/Comment Section on page 2.

Review Item	Frequency	Limits	Pass	Fail (List Batch/Sample) **See Run Log**	2nd Level Review
Tune	Before ICAL Every 12 hours	See Tune Eval Report	X		x
Resolution Check - Benzo(b) and Benzo(k)phenanthrene	Before ICAL Every 12 hours	Benzo(b) and Benzo(k) Valley > 50%	X		
Initial Calibration Curve (ICAL) (minimum: 5 Standards)	Prior to samples and when ICV fails	Avg. RF - %RSD ≤ 15% Curve (COD) - R^2 ≥ 0.990	X		
SSCV - (Second Source)	After calibration (ICAL)	80-120%	X		
ICV - (Daily Initial Cal Verification)	Every 12 hours	ISTDs Area% (50-200%) Surrogates %R (See LIMS) Analytes %R (80-120%)	X		

Review Item	Frequency	Limits	Pass	Fail	N/A	Review
Method Blank (MB) System Blank (SYS Blank)	Every Batch (MB) Daily (SYS BL)	< MDL / <½ RL (DoD) or <1/10 the sample/reg limit	X			x
Lab Control Sample (LCS)	Every Batch	See LIMS	X			
Lab Control Sample Dup (LCSD)	Insufficient sample Sample Matrix	See LIMS			X	
LCSD - RPD	Every LCS/LCSD	≤ 30 (Aq/Soil/DoD)			X	
Field Samples	Up to 20 per prep batch	ISTDs Area% (50-200%) Surrogates %R (See LIMS) RRT ± 0.06 RRT Standard Q value > 70 - check for #	X			
Matrix Spike (MS)	Every Batch/20 samples	See LIMS	X			
Matrix Spike Duplicate (MSD) (MSD is N/A for Method 625)	Every Prep Batch except Method 625	See LIMS	X			
MSD - RPD (MSD is N/A for Method 625)	Every MS/MSD except Method 625	≤ 30 (Aq/Soil/DoD)	X			

Lab Data Review Check List
EPA Method 8270 / 625 - PAH: Polynuclear Aromatic Hydrocarbons

Review Item	Criteria	Yes	No	N/A	2nd Level Review
Sample Analysis	7 days (Aq) - extraction			X	
1. Are all sample hold times met?	14 days (Soil) - extraction	X			
	40 days analysis	X			
2. Are all manual integrations signed (Before & After) and printouts included ? Put in LIMS Comment Section ***Include MI form for DoD work***	Before & After - signed Comment Section in LIMS MI Form - DoD only			X	x
3. Are all samples with concentrations > the highest standard used for calibration diluted and reanalyzed?	> highest standard			X	
Review Item #3 is N/A ONLY if all sample results are within Calibration range or NO if dilution is in different folder					
4. Is mass spectra reviewed/verified if Q value is <70 and/or # flag for results >MDL?	Q value <70 - All hits	X			x
5. Are ALL reported analytes > MDL (+ J flags) circled by the analyst?		X	**Return to analyst if NO**		
VARIANCE REPORT					
QC items that do not meet method/SOP/project requirements will be described on the run log. All variances that impact data quality will be described in this section.					
NON-CONFORMANCES / VARIANCE	All deviations from the method and SOP that affect data quality			X	x
1. Are all non-conformances included and noted?					
2. Are all corrective actions included?				X	
3. Does the variance require approval by the Technical Director/General Manager/QA Manager?				X	

Approved by: Date:

Description and Corrective Actions of QC items that do not meet method/SOP/project requirements:

****INCLUDE VARIANCE ITEM / REASON / CORRECTIVE ACTION / IMPACT ON DATA****

VARIANCE ITEM	REASON	CORRECTIVE ACTION
___ Hold Time exceeded (7D/14D-Ext/40D-Analysis)	___ Sample Received out of HT	___ Reanalyze QC to confirm
___ ICV out of control (±20%)	___ Carryover from previous run	___ Recalibrate
___ MB/SYS BL out of control (> MDL / >½ RL)	___ Cross contamination	___ Reprep/Reanalyze sample
___ LCS ___LCSD out of control (See LIMS)	___ Lab Artifact	___ Reprep/Reanalyze Batch
___ RPD out of control for LCS/LCSD (>30)	___ Prep Spike error (describe)	___ Reanalyze Batch/Sample/QC
___ MS ___ MSD out of control (See LIMS)	___ High Levels of target analytes	___ Verify H2O/reagents are clean
___ RPD out of control for MS/MSD (>30)	___ High Levels of non-targets	___ Reanalyze sample to confirm
___ Internal Standard(s) out of control	___ Insufficient sample for QC	___ Sample results ND w/ dilution
___ Multiple Surrogates out of control	___ Prep Error	___ Client notified and approved
___ No MS/MSD prepared - LCS/LCSD used instead	___ Analytical Error	___ Flag data / Case narrative
___ Missing QC (other than MS/MSD)	___ Client Request	___ Instrument Maintenance
___ QC sample(s) was mis-spiked	___ Other (describe below)	___ Accept data
___ Other (describe below)		___ Cannot reanalyze (HT out/Lack of Sample)

General Comments and Impact on Data: **See Run Log.**

Analyst: Don Winston Date: 8/10/2016

Second-Level Review: Janice Whitt Date: 8/18/2016

REVIEWED BY
By Janice Whitt at 11:18:15 AM, 8/18/2016

DHL Analytical, Inc.

Run ID: GCMS8_160809A **Run No.:** 87516

Analytical Run Date: 8/9/2016 **InstrumentID:** GCMS8

Analyst: Don Winston **Column:** Rtx-5Sil MS (30m x 0.25mm ID x 0.5µm df)

Calibration ID: 682 **Column ID:** 0.18mm

Column Length: 20m

SampID	DF	TestCode	SampType	Batch ID	Analysis Date/Time	Q	Comments
DFTPP-160809	1	PAH_LL_SDOD1	TUNE	R87516	8/9/2016 8:25:00 AM		All samples in this batch run at 10x - detection limit is sufficient and is approved by project managers.
ICV-160809	1	PAH_LL_SDOD1	ICV	R87516	8/9/2016 9:04:00 AM		
LCS-76617	1	PAH_LL_SDOD1	LCS	76617	8/9/2016 9:44:00 AM		
MB-76617	1	PAH_LL_SDOD1	MBLK	76617	8/9/2016 10:24:00 AM		
1607317-27A	10	PAH_LL_SDOD1	SAMP	76617	8/9/2016 11:05:00 AM		
1607317-28A	10	PAH_LL_SDOD1	SAMP	76617	8/9/2016 11:45:00 AM		
1607317-29A	10	PAH_LL_SDOD1	SAMP	76617	8/9/2016 12:25:00 PM		
1607317-30A	10	PAH_LL_SDOD1	SAMP	76617	8/9/2016 1:05:00 PM		
1607317-31A	10	PAH_LL_SDOD1	SAMP	76617	8/9/2016 1:45:00 PM		
1607317-32A	10	PAH_LL_SDOD1	SAMP	76617	8/9/2016 2:25:00 PM		
1607317-33A	10	PAH_LL_SDOD1	SAMP	76617	8/9/2016 3:06:00 PM		
1607317-34A	10	PAH_LL_SDOD1	SAMP	76617	8/9/2016 3:46:00 PM		
1607317-35A	10	PAH_LL_SDOD1	SAMP	76617	8/9/2016 4:27:00 PM		
1607317-36A	10	PAH_LL_SDOD1	SAMP	76617	8/9/2016 5:08:00 PM		
1607317-37A	10	PAH_LL_SDOD1	SAMP	76617	8/9/2016 5:48:00 PM		
1607317-38A	10	PAH_LL_SDOD1	SAMP	76617	8/9/2016 6:27:00 PM		
DFTPP2-160809	1	PAH_LL_SDOD1	TUNE	R87516	8/9/2016 7:07:00 PM		
ICV2-160809	1	PAH_LL_SDOD1	ICV	R87516	8/9/2016 7:46:00 PM		
SB-160809	1	PAH_LL_SDOD1	SBLK	76617	8/9/2016 9:05:00 PM		
1607337-01A	10	PAH_LL_SDOD1	SAMP	76617	8/9/2016 9:45:00 PM		
1607337-02A	10	PAH_LL_SDOD1	SAMP	76617	8/9/2016 10:25:00 PM		
1607337-03A	10	PAH_LL_SDOD1	SAMP	76617	8/9/2016 11:05:00 PM		
1607337-04A	10	PAH_LL_SDOD1	SAMP	76617	8/9/2016 11:45:00 PM		
1607337-05A	10	PAH_LL_SDOD1	SAMP	76617	8/10/2016 12:24:00 AM		
1607337-06A	10	PAH_LL_SDOD1	SAMP	76617	8/10/2016 1:04:00 AM		
1607337-07A	10	PAH_LL_SDOD1	SAMP	76617	8/10/2016 1:43:00 AM		
1607337-08A	10	PAH_LL_SDOD1	SAMP	76617	8/10/2016 2:23:00 AM		
1607317-27AMS	10	PAH_LL_SDOD1	MS	76617	8/10/2016 3:02:00 AM		
1607317-27AMSD	10	PAH_LL_SDOD1	MSD	76617	8/10/2016 3:42:00 AM		

Std ID	Std Name	Type	Exp. Date
DFTPP160509	2.5 PPM 525 TUNE STD.	TUNE	05/07/2017
PAHCCV160806	1 PPM PAH CCV STANDARD	CCV	11/04/2016
PAHICV160806	2 PPM PAH ICV	ICV	11/04/2016
SVI160510-3	4000 PPM INTERNAL STANDAR	ALL	07/30/2017

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Run ID: GCMS8_160809A **Run No.:** 87516

CCV1-160809	1	PAH_LL_SDOD1	CCV	R87516	8/10/2016 4:21:00 AM		

Std ID	Std Name	Type	Exp. Date
DFTPP160509	2.5 PPM 525 TUNE STD.	TUNE	05/07/2017
PAHCCV160806	1 PPM PAH CCV STANDARD	CCV	11/04/2016
PAHICV160806	2 PPM PAH ICV	ICV	11/04/2016
SVI160510-3	4000 PPM INTERNAL STANDAR	ALL	07/30/2017

Sequence Name: C:\msdchem\1\sequence\160809.S
Comment:
Operator:
Data Path: C:\MSDCHEM\1\DATA\160808\
Instrument Name: GCMS #8
Instrument Control Pre-Seq Cmd:
Data Analysis Pre-Seq Cmd:

Instrument Control Post-Seq Cmd:
Data Analysis Post-Seq Cmd:

Method Sections To Run
(X) Full Method
( ) Reprocessing Only

On A Barcode Mismatch
(X) Inject Anyway
( ) Don't Inject

Line		Sample Name/Misc Info		
1)	Sample	1	16080901 DFTPPPAH	DFTPP-160809
2)	Sample	2	16080902 PAH160806	ICV-160809
3)	Sample	3	16080903 PAH160806	LCS-76617
4)	Sample	4	16080904 PAH160806	MB-76617
5)	Sample	5	16080905 PAH160806	1607317-27A
6)	Sample	6	16080906 PAH160806	1607317-28A
7)	Sample	7	16080907 PAH160806	1607317-29A
8)	Sample	8	16080908 PAH160806	1607317-30A
9)	Sample	9	16080909 PAH160806	1607317-31A
10)	Sample	10	16080910 PAH160806	1607317-32A
11)	Sample	11	16080911 PAH160806	1607317-33A
12)	Sample	12	16080912 PAH160806	1607317-34A
13)	Sample	13	16080913 PAH160806	1607317-35A
14)	Sample	14	16080914 PAH160806	1607317-36A
15)	Sample	15	16080915 PAH160806	1607317-37A
16)	Sample	16	16080916 PAH160806	1607317-38A
17)	Sample	17	16080917 DFTPPPAH	DFTPP2-160809
18)	Sample	18	16080918 PAH160806	ICV-160809
19)	Sample	19	16080919 PAH160806	SBLK
20)	Sample	20	16080920 PAH160806	SB-160809
21)	Sample	21	16080921 PAH160806	1607337-01A
22)	Sample	22	16080922 PAH160806	1607337-02A
23)	Sample	23	16080923 PAH160806	1607337-03A
24)	Sample	24	16080924 PAH160806	1607337-04A
25)	Sample	25	16080925 PAH160806	1607337-05A
26)	Sample	26	16080926 PAH160806	1607337-06A
27)	Sample	27	16080927 PAH160806	1607337-07A
28)	Sample	28	16080928 PAH160806	1607337-08A
29)	Sample	29	16080929 PAH160806	1607317-27AMS
30)	Sample	30	16080930 PAH160806	1607317-27AMSD
31)	Sample	31	16080931 PAH160806	CCV1-160809

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PREP BATCH REPORT

Prep Start Date: **8/2/2016 12:41:56 PM**
Digestion:
Prep End Date: **8/2/2016 3:20:00 PM**

Prep Batch **76617** Prep Code: **3550_PAHDOD** Technician: **Alex Robbins**

Prep Factor Units: **mL/g**

Equipment List

Turbo-Vap # 1,2,3
Balance # 25
Sonicators # 1,2,3,4

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607317-27A	Soil		10.3	10	0.971	of 3	
1607317-27AMS	Soil		10.18	10	0.982	of	
1607317-27AMSD	Soil		10.09	10	0.991	of	
1607317-28A	Soil		10.32	10	0.969	1 of 1	
1607317-29A	Soil		10.1	10	0.990	1 of 1	
1607317-30A	Soil		10.13	10	0.987	1 of 1	
1607317-31A	Soil		10.06	10	0.994	1 of 1	
1607317-32A	Soil		10.2	10	0.980	1 of 1	
1607317-33A	Soil		10.28	10	0.973	1 of 1	
1607317-34A	Soil		10.69	10	0.935	1 of 1	
1607317-35A	Soil		10.2	10	0.980	1 of 1	
1607317-36A	Soil		10.2	10	0.980	1 of 1	
1607317-37A	Soil		10.14	10	0.986	1 of 1	
1607317-38A	Soil		10.56	10	0.947	1 of 1	
1607337-01A	Soil		10.06	10	0.994	1 of 1	
1607337-02A	Soil		10.17	10	0.983	1 of 1	
1607337-03A	Soil		10.02	10	0.998	1 of 1	
1607337-04A	Soil		10.11	10	0.989	1 of 1	
1607337-05A	Soil		10.14	10	0.986	1 of 1	
1607337-06A	Soil		10.08	10	0.992	1 of 1	
1607337-07A	Soil		10.04	10	0.996	1 of 1	
1607337-08A	Soil		10.19	10	0.981	1 of 1	
LCS-76617	Soil		10	10	1.000	of	
MB-76617	Soil		10	10	1.000	of	

Number	Reagent Name	Amt	Units	Exp. Da
10394	Purified Sodium Sulfate	10	g	05/23/2026
10419	Methylene Chloride	8	ml	05/31/2026
10536	Whatman 41 Filter	1	filter	07/11/2026
10591	1:1 MeCl2/Acetone	120	ml	07/26/2026

Spk ID	Spike Name	SampType	Amt (mL or g)	Exp. Date
PAHPREP160727	200 PPM PAH Spike Mix	LCS/MS/MSD	0.05	10/25/2016
SVPREP160802	40 PPM Surrogate Standard	ALL	0.25	10/31/2016

REVIEWED BY
By Janice Whitt at 10:56:54 AM, 8/18/2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **8/2/2016 12:41:56 PM**
Digestion:
Prep End Date: 8/2/16 3:20 PM

Prep Batch **76617** Prep Code: **3550_PAHDOD** Technician: **Alex Robbins**

Prep Factor Units: **mL/g**

Equipment List
Turbo-Vap # 1,2,3
Balance # 25
Sonicators # 1,2,3,4

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #		
1607317-27A	Soil		10 .30	10	1.000	1	of	3
1607317-27AMS	Soil		10 .18	10	1.000	1	of	↓
1607317-27AMSD	Soil		10 .09	10	1.000	1	of	
1607317-28A	Soil		10 .32	10	1.000	1	of	1
1607317-29A	Soil		10 .10	10	1.000	1	of	1
1607317-30A	Soil		10 .13	10	1.000	1	of	1
1607317-31A	Soil		10 .06	10	1.000	1	of	1
1607317-32A	Soil		10 .29	10	1.000	1	of	1
1607317-33A	Soil		10 .28	10	1.000	1	of	1
1607317-34A	Soil		10 69	10	1.000	1	of	1
1607317-35A	Soil		10 .20	10	1.000	1	of	1
1607317-36A	Soil		10 20	10	1.000	1	of	1
1607317-37A	Soil		10 14	10	1.000	1	of	1
1607317-38A	Soil		10 56	10	1.000	1	of	1
1607337-01A	Soil		10 06	10	1.000	1	of	1
1607337-02A	Soil		10 .17	10	1.000	1	of	1
1607337-03A	Soil		10 .02	10	1.000	1	of	1
1607337-04A	Soil		10 .11	10	1.000	1	of	1
1607337-05A	Soil		10 .14	10	1.000	1	of	1
1607337-06A	Soil		10 .08	10	1.000	1	of	1
1607337-07A	Soil		10 .04	10	1.000	1	of	1
1607337-08A	Soil		10 .19	10	1.000	1	of	1
LCS-76617	Soil		10	10	1.000		of	
MB-76617	Soil		10	10	1.000		of	

Number	Reagent Name	Amt	Units	Exp. D
10394	Purified Sodium Sulfate	10	g	05/23/2026
10419	Methylene Chloride	8	ml	05/31/2026
10536	Whatman 41 Filter	1	filter	07/11/2026
10591	1:1 MeCl2/Acetone	120	ml	07/26/2026

Spk ID	Spike Name	SampType	Amt (mL or g)	Exp. Date
PAHPREP160727	200 PPM PAH Spike Mix	LCS/MS/MSD	0.05	10/25/2016
SVPREP160802	40 PPM Surrogate Standard	ALL	0.25	10/31/2016

REVIEWED BY
By Janice Whitt at 10:56:51 AM, 8/18/2016

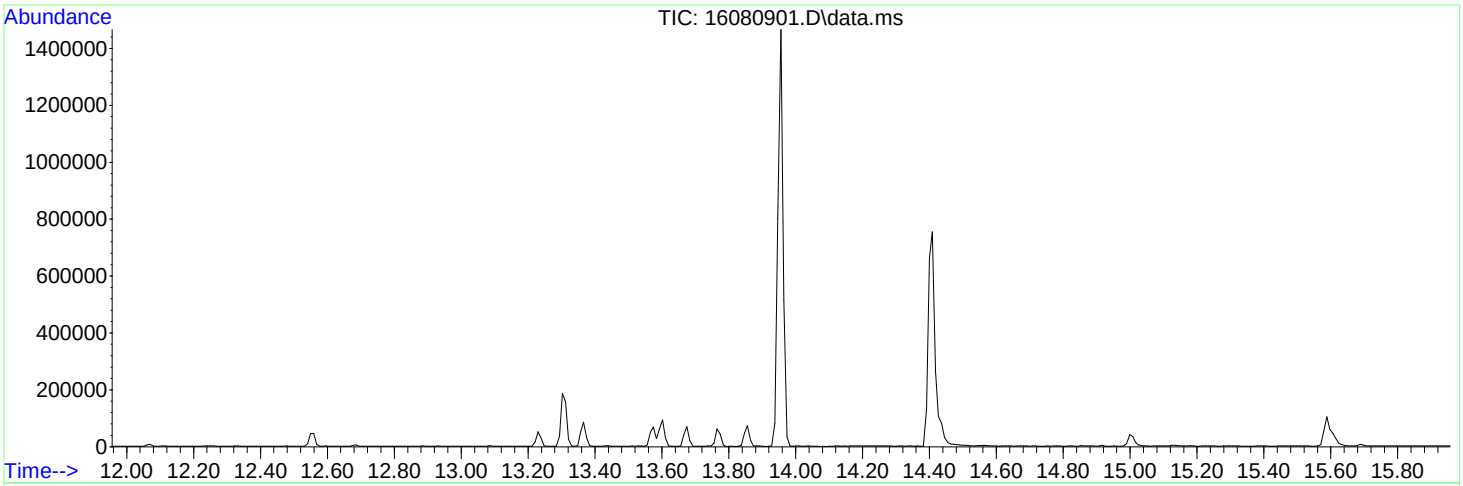
AK 8/2/16

8/2/16

Data Path : C:\msdchem\1\DATA\160809\
Data File : 16080901.D
Acq On : 9 Aug 2016 8:25 am
Operator :
Sample : DFTPP-160809
Misc : TUNE
ALS Vial : 1 Sample Multiplier: 1

Integration File: RTEINT.P

Method : C:\msdchem\1\METHODS\DFTPPPAH.M
Title : CLP BNA Calibration - Large Volume Injection
Last Update : Thu Aug 27 07:24:43 2015



AutoFind: Scans 426, 427, 428; Background Corrected with Scan 422

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	10	80	41.1	38775	PASS
68	69	0.00	2	0.0	0	PASS
69	198	0.00	100	44.1	41662	PASS
70	69	0.00	2	0.0	0	PASS
127	198	10	80	51.8	48888	PASS
197	198	0.00	2	0.0	0	PASS
198	198	100	100	100.0	94418	PASS
199	198	5	9	6.9	6484	PASS
275	198	10	60	28.7	27130	PASS
365	198	1	200	4.1	3835	PASS
441	442	0.01	24	16.2	24092	PASS
442	198	50	400	158.0	149146	PASS
443	442	15	24	19.9	29627	PASS

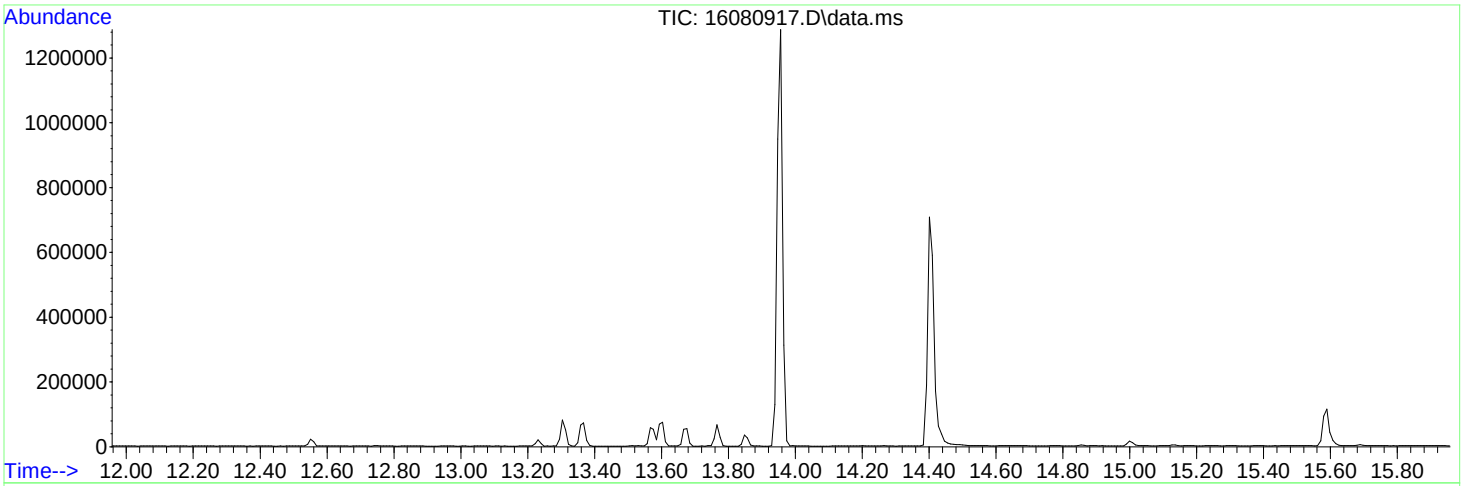
REVIEWED BY
By Janice Whitt at 10:57:04 AM, 8/18/2016

DFTPP

Data Path : C:\msdchem\1\DATA\160809\
Data File : 16080917.D
Acq On : 9 Aug 2016 7:07 pm
Operator :
Sample : DFTPP2-160809
Misc : TUNE
ALS Vial : 17 Sample Multiplier: 1

Integration File: RTEINT.P

Method : C:\msdchem\1\METHODS\DFTPPPAH.M
Title : CLP BNA Calibration - Large Volume Injection
Last Update : Thu Aug 27 07:24:43 2015



AutoFind: Scans 426, 427, 428; Background Corrected with Scan 422

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	10	80	40.1	35017	PASS
68	69	0.00	2	0.0	0	PASS
69	198	0.00	100	42.7	37338	PASS
70	69	0.00	2	0.0	0	PASS
127	198	10	80	50.1	43754	PASS
197	198	0.00	2	0.0	0	PASS
198	198	100	100	100.0	87360	PASS
199	198	5	9	6.8	5933	PASS
275	198	10	60	28.6	24963	PASS
365	198	1	200	4.1	3585	PASS
441	442	0.01	24	16.1	22461	PASS
442	198	50	400	159.7	139549	PASS
443	442	15	24	19.6	27361	PASS

REVIEWED BY
By Janice Whitt at 10:57:07 AM, 8/18/2016

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160809\
Data File : 16080902.D
Acq On : 9 Aug 2016 9:04 am
Operator :
Sample : ICV-160809
Misc : ICV
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Aug 10 07:59:56 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	10.993	136	310975	4000.00	ug/kg	117
6) Acenaphthene-d10	13.454	164	231254	4000.00	ug/kg	143
11) Phenanthrene-d10	15.559	188	517156	4000.00	ug/kg	100
17) Chrysene-d12	21.449	240	463578	4000.00	ug/kg	100
20) Perylene-d12	26.655	264	464909	4000.00	ug/kg	111

System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.376	172	139773	2020.41	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 50.51%			
15) 4-Terphenyl-d14	18.113	244	171738	1888.89	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery = 47.22%#			

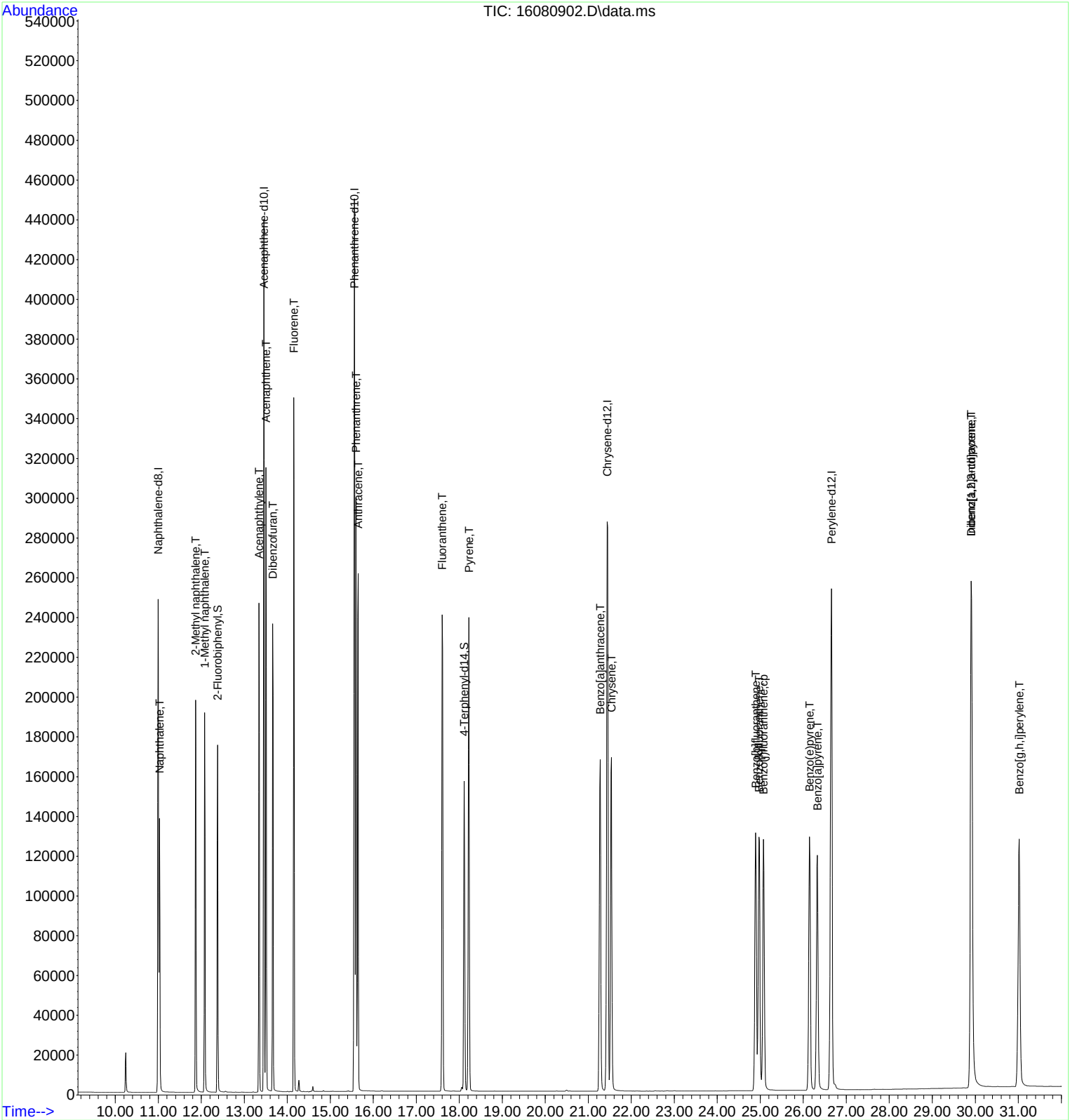
Target Compounds						Qvalue
2) Naphthalene	11.029	128	141558	1908.33	ug/kg	100
3) 2-Methyl naphthalene	11.865	142	109438	2164.34	ug/kg	98
4) 1-Methyl naphthalene	12.078	142	102075	2195.89	ug/kg	99
7) Acenaphthylene	13.341	152	220492	2060.89	ug/kg	100
8) Acenaphthene	13.504	153	137337	1964.20	ug/kg	99
9) Dibenzofuran	13.660	168	212964	1774.56	ug/kg	91
10) Fluorene	14.149	166	180100	1735.46	ug/kg	99
12) Phenanthrene	15.597	178	262686	1994.95	ug/kg	100
13) Anthracene	15.645	178	266146	1971.57	ug/kg	99
14) Fluoranthene	17.602	202	262930	1873.10	ug/kg	100
16) Pyrene	18.219	202	260250	1854.37	ug/kg	99
18) Benzo[a]anthracene	21.276	228	235607	2017.96	ug/kg	100
19) Chrysene	21.536	228	221777	2006.92	ug/kg	100
21) Benzo[b]fluoranthene	24.891	252	238823	2026.08	ug/kg	99
22) Benzo[k]fluoranthene	24.977	252	218561	2225.86	ug/kg	98
23) Benzo(j)fluoranthene	25.074	252	206528	2167.75	ug/kg	100
24) Benzo(e)pyrene	26.144	252	231972	1977.62	ug/kg	100
25) Benzo[a]pyrene	26.327	252	226691	2055.09	ug/kg	99
26) Indeno[1,2,3-cd]pyrene	29.913	276	289468	2115.43	ug/kg	98
27) Dibenz[a,h]anthracene	29.904	278	238364	2172.40	ug/kg	98
28) Benzo[g,h,i]perylene	31.022	276	246238	2027.10	ug/kg	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160809\
Data File : 16080902.D
Acq On : 9 Aug 2016 9:04 am
Operator :
Sample : ICV-160809
Misc : ICV
ALS Vial : 2 Sample Multiplier: 1

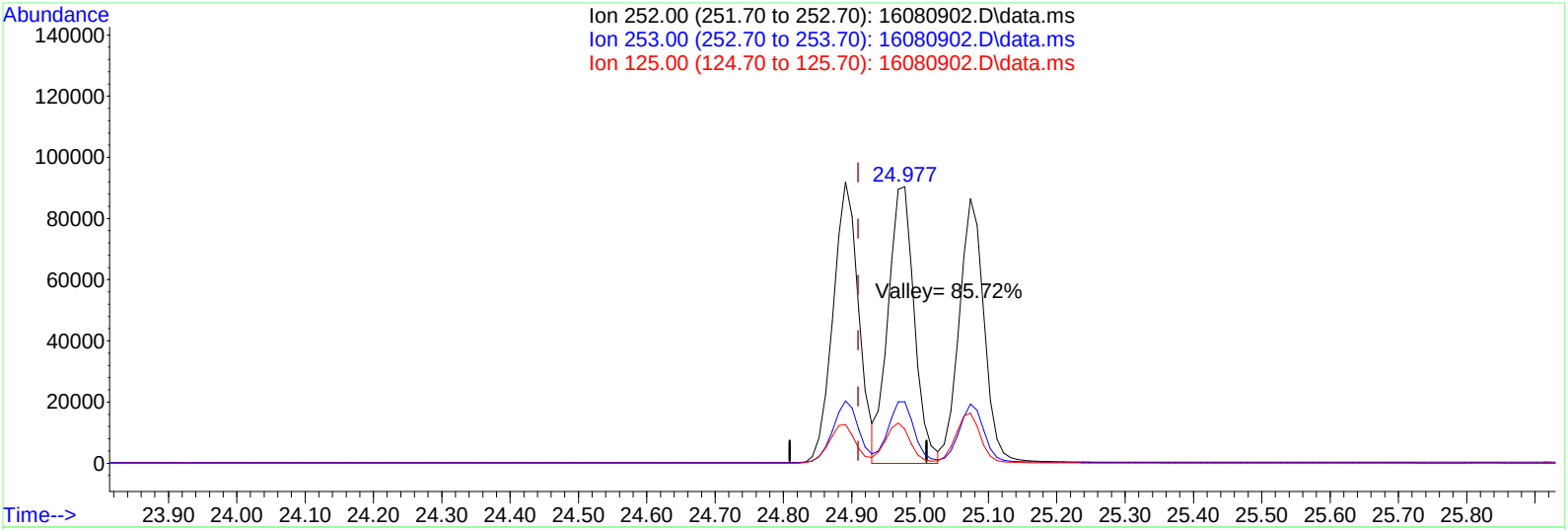
Quant Time: Aug 10 07:59:56 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration

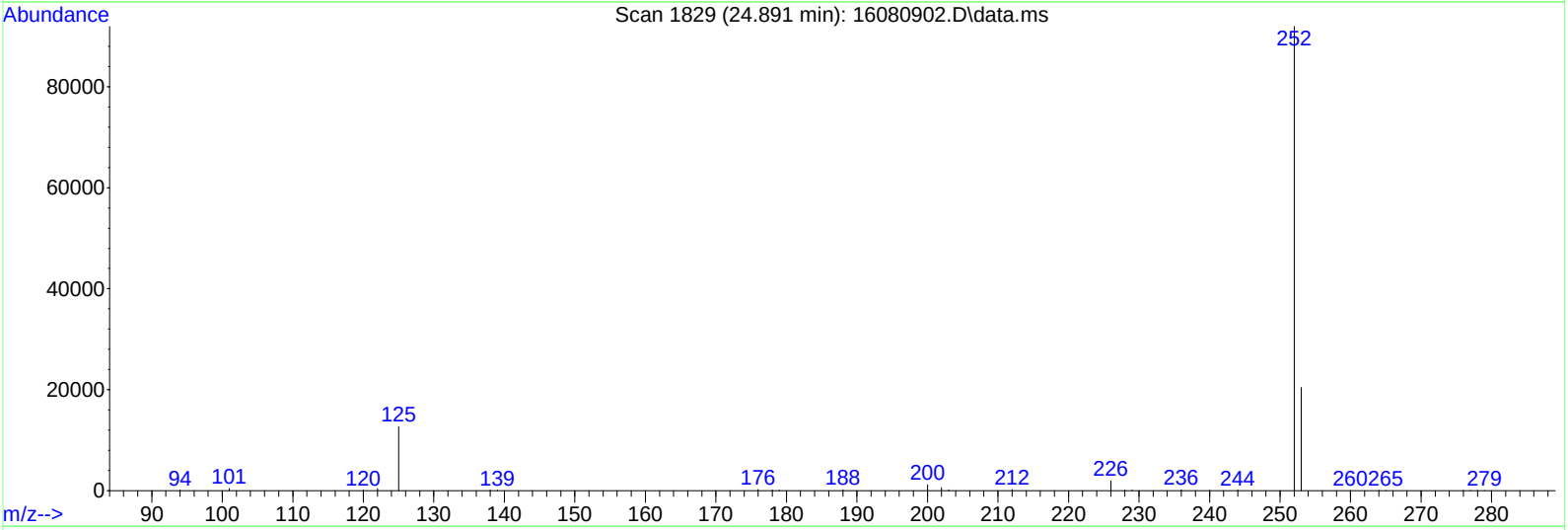


Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\160809\
Data File : 16080902.D
Acq On : 9 Aug 2016 9:04 am
Operator :
Sample : ICV-160809
Misc : ICV
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Aug 09 09:36:31 2016
Quant Method : C:\MSDCHEM\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration





TIC: 16080902.D\data.ms

(21) Benzo[b]fluoranthene (T)

24.891min (-0.019) 2026.08ug/kg

response 238823

Ion	Exp%	Act%
252.00	100	100
253.00	21.90	21.95
125.00	13.20	13.72
0.00	0.00	0.00

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160809\
Data File : 16080903.D
Acq On : 9 Aug 2016 9:44 am
Operator :
Sample : LCS-76617
Misc : LCS
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Aug 10 07:59:59 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration

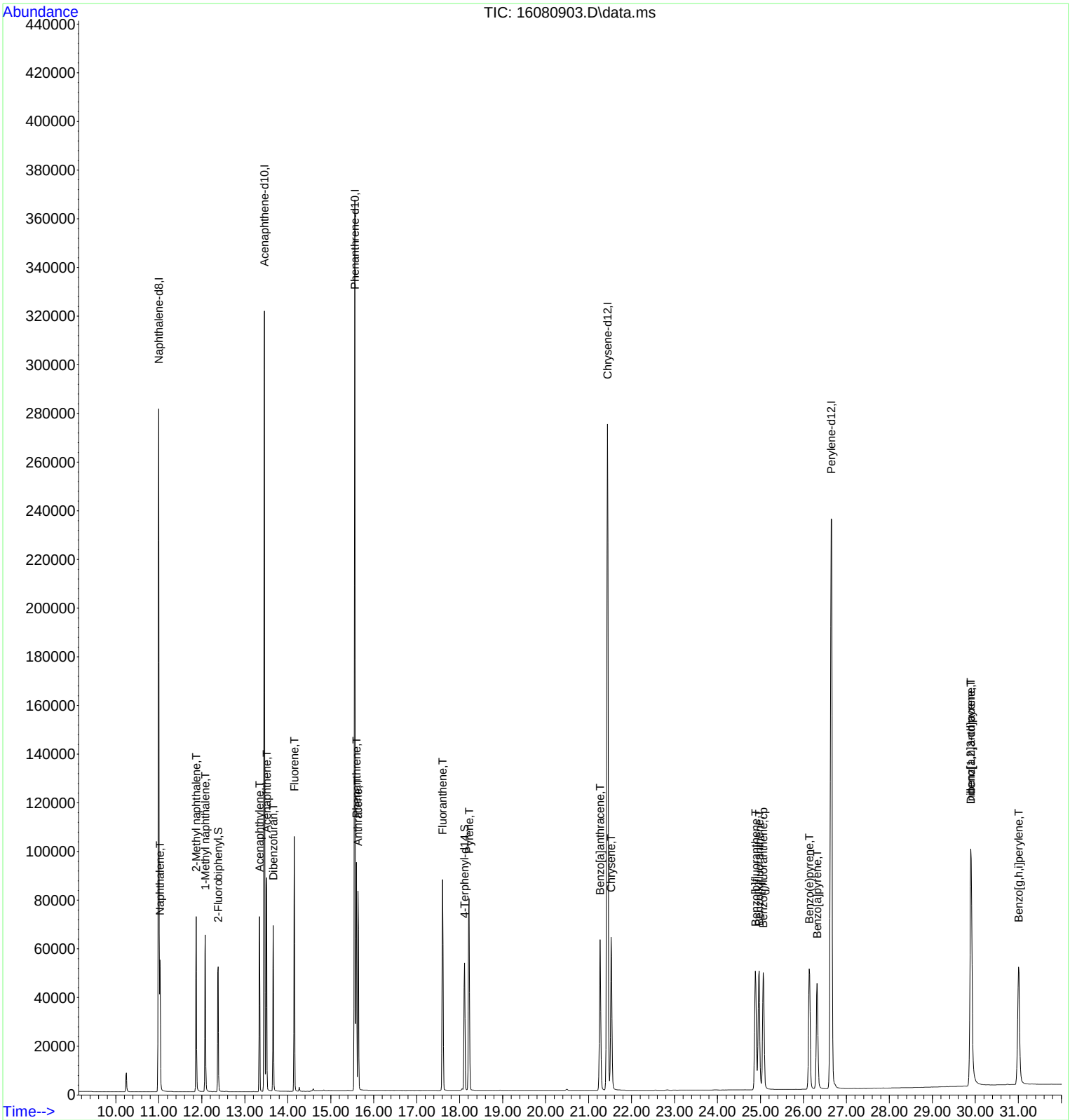
Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	10.996	136	348311	4000.00	ug/kg	132
6) Acenaphthene-d10	13.457	164	178760	4000.00	ug/kg	110
11) Phenanthrene-d10	15.559	188	408512	4000.00	ug/kg	79
17) Chrysene-d12	21.439	240	418646	4000.00	ug/kg	90
20) Perylene-d12	26.655	264	444285	4000.00	ug/kg	106
System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.379	172	45847	591.68	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 14.79%#			
15) 4-Terphenyl-d14	18.113	244	59933	834.50	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery = 20.86%#			
Target Compounds						Qvalue
2) Naphthalene	11.024	128	59082	711.10	ug/kg	99
3) 2-Methyl naphthalene	11.868	142	39486	697.20	ug/kg	99
4) 1-Methyl naphthalene	12.081	142	36530	701.62	ug/kg	99
7) Acenaphthylene	13.344	152	66099	799.24	ug/kg	99
8) Acenaphthene	13.507	153	41652	770.64	ug/kg	99
9) Dibenzofuran	13.663	168	61002	657.58	ug/kg	93
10) Fluorene	14.152	166	52686	656.77	ug/kg	100
12) Phenanthrene	15.597	178	84338	797.48	ug/kg	99
13) Anthracene	15.636	178	79823	748.58	ug/kg	100
14) Fluoranthene	17.603	202	89358	805.88	ug/kg	96
16) Pyrene	18.220	202	90129	812.99	ug/kg	95
18) Benzo[a]anthracene	21.266	228	85071	806.83	ug/kg	99
19) Chrysene	21.526	228	79921	800.85	ug/kg	100
21) Benzo[b]fluoranthene	24.881	252	90215	800.88	ug/kg	99
22) Benzo[k]fluoranthene	24.968	252	83074	885.31	ug/kg	98
23) Benzo(j)fluoranthene	25.064	252	80450	883.61	ug/kg	99
24) Benzo(e)pyrene	26.134	252	91590	817.07	ug/kg	100
25) Benzo[a]pyrene	26.318	252	84342	800.11	ug/kg	99
26) Indeno[1,2,3-cd]pyrene	29.904	276	115648	884.39	ug/kg	99
27) Dibenz[a,h]anthracene	29.894	278	93160	888.45	ug/kg	99
28) Benzo[g,h,i]perylene	31.003	276	97808	842.56	ug/kg	97

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160809\
Data File : 16080903.D
Acq On : 9 Aug 2016 9:44 am
Operator :
Sample : LCS-76617
Misc : LCS
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Aug 10 07:59:59 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160809\
Data File : 16080904.D
Acq On : 9 Aug 2016 10:24 am
Operator :
Sample : MB-76617
Misc : MBLK
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Aug 10 08:00:02 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	10.997	136	343631	4000.00	ug/kg	130
6) Acenaphthene-d10	13.451	164	163555	4000.00	ug/kg	101
11) Phenanthrene-d10	15.558	188	391797	4000.00	ug/kg	76
17) Chrysene-d12	21.439	240	423361	4000.00	ug/kg	91
20) Perylene-d12	26.645	264	427202	4000.00	ug/kg	102

System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.373	172	43440	568.25	ug/kg	-0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery = 14.21%#			
15) 4-Terphenyl-d14	18.113	244	64282	933.24	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery = 23.33%#			

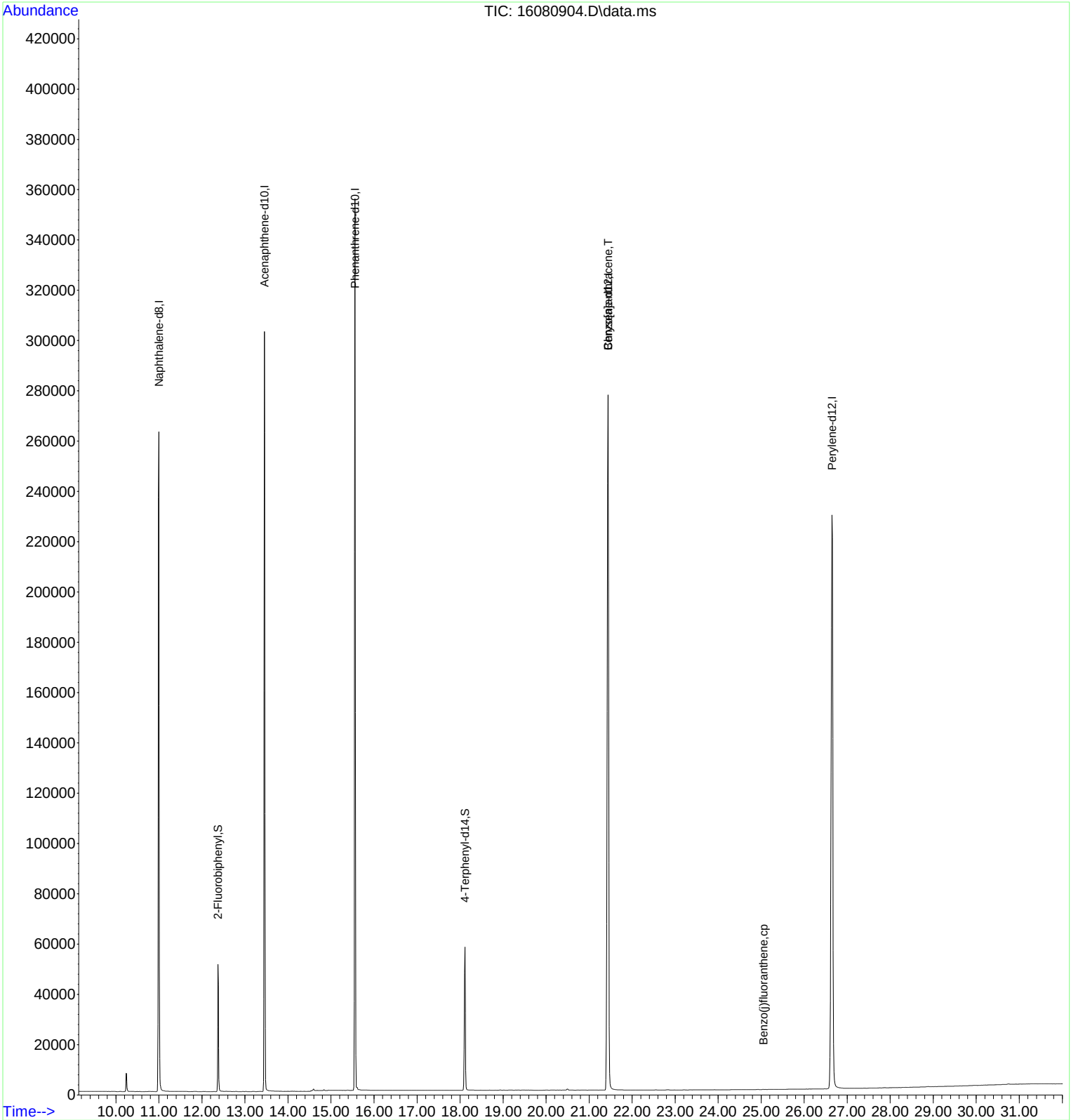
Target Compounds						Qvalue
18) Benzo[a]anthracene	21.439	228	1146	10.75	ug/kg	71
23) Benzo(j)fluoranthene	25.064	252	19	0.22	ug/kg#	1

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160809\
Data File : 16080904.D
Acq On : 9 Aug 2016 10:24 am
Operator :
Sample : MB-76617
Misc : MBLK
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Aug 10 08:00:02 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160809\
Data File : 16080918.D
Acq On : 9 Aug 2016 7:46 pm
Operator :
Sample : ICV2-160809
Misc : ICV
ALS Vial : 18 Sample Multiplier: 1

Quant Time: Aug 10 08:00:05 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration

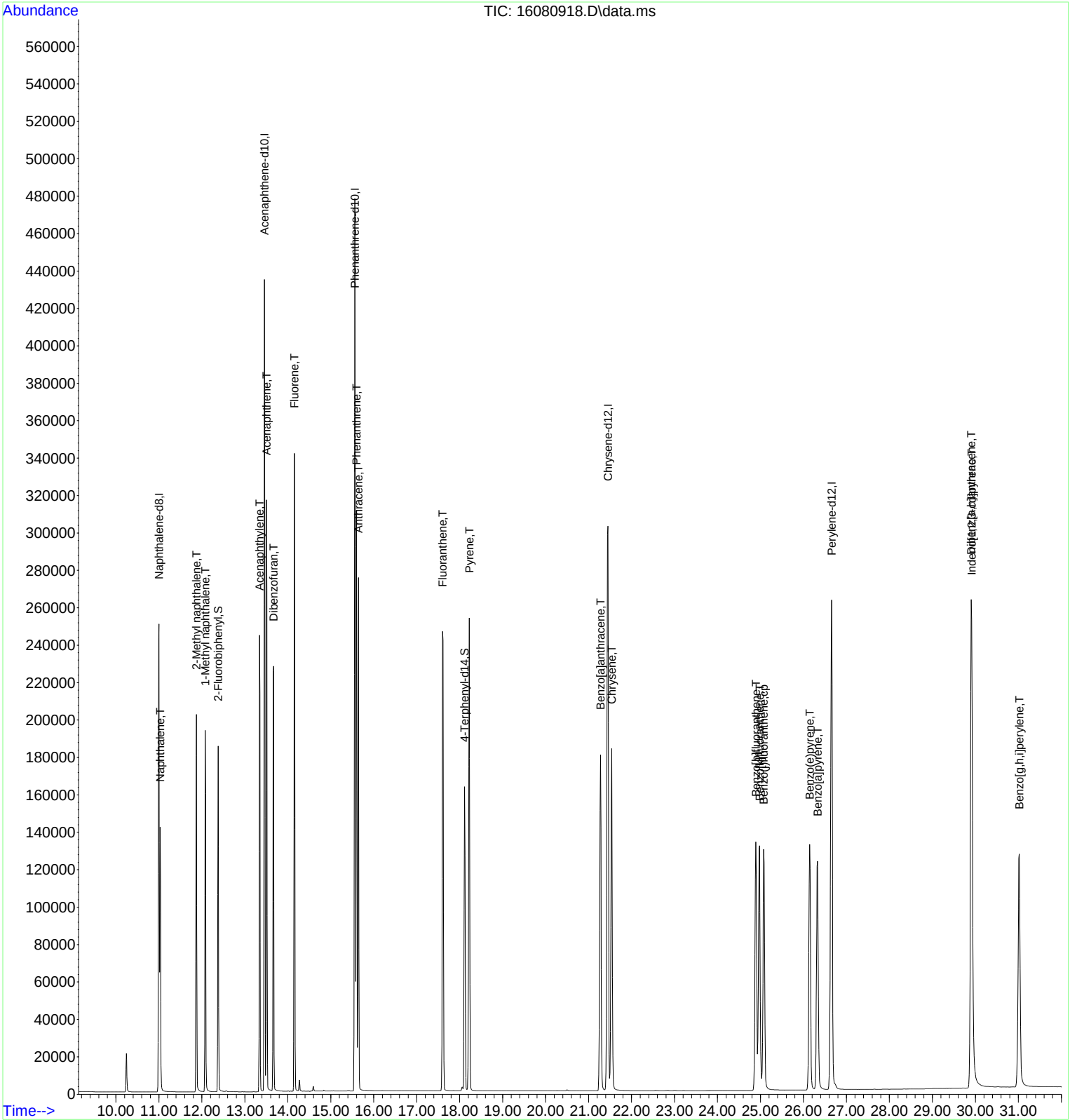
Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	11.001	136	327039	4000.00	ug/kg	124
6) Acenaphthene-d10	13.454	164	238763	4000.00	ug/kg	147
11) Phenanthrene-d10	15.559	188	538839	4000.00	ug/kg	105
17) Chrysene-d12	21.449	240	486914	4000.00	ug/kg	105
20) Perylene-d12	26.655	264	486864	4000.00	ug/kg	116
System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.376	172	146490	2013.49	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 50.34%			
15) 4-Terphenyl-d14	18.113	244	180912	1909.73	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery = 47.74%#			
Target Compounds						Qvalue
2) Naphthalene	11.029	128	148494	1903.50	ug/kg	99
3) 2-Methyl naphthalene	11.873	142	113190	2128.59	ug/kg	98
4) 1-Methyl naphthalene	12.079	142	105831	2164.86	ug/kg	97
7) Acenaphthylene	13.341	152	228316	2066.90	ug/kg	99
8) Acenaphthene	13.504	153	142965	1980.39	ug/kg	98
9) Dibenzofuran	13.667	168	219215	1769.20	ug/kg	85
10) Fluorene	14.157	166	186929	1744.62	ug/kg	99
12) Phenanthrene	15.597	178	273800	1995.71	ug/kg	100
13) Anthracene	15.645	178	273388	1943.73	ug/kg	99
14) Fluoranthene	17.612	202	274347	1875.79	ug/kg	90
16) Pyrene	18.220	202	273507	1870.41	ug/kg	99
18) Benzo[a]anthracene	21.276	228	247644	2019.41	ug/kg	100
19) Chrysene	21.536	228	233182	2009.00	ug/kg	100
21) Benzo[b]fluoranthene	24.891	252	249332	2019.85	ug/kg	99
22) Benzo[k]fluoranthene	24.978	252	227430	2211.73	ug/kg	98
23) Benzo(j)fluoranthene	25.074	252	214362	2148.51	ug/kg	100
24) Benzo(e)pyrene	26.144	252	243263	1980.35	ug/kg	100
25) Benzo[a]pyrene	26.327	252	238440	2064.13	ug/kg	99
26) Indeno[1,2,3-cd]pyrene	29.923	276	299357	2089.05	ug/kg	93
27) Dibenz[a,h]anthracene	29.904	278	246459	2144.89	ug/kg	98
28) Benzo[g,h,i]perylene	31.022	276	255087	2005.25	ug/kg	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160809\
Data File : 16080918.D
Acq On : 9 Aug 2016 7:46 pm
Operator :
Sample : ICV2-160809
Misc : ICV
ALS Vial : 18 Sample Multiplier: 1

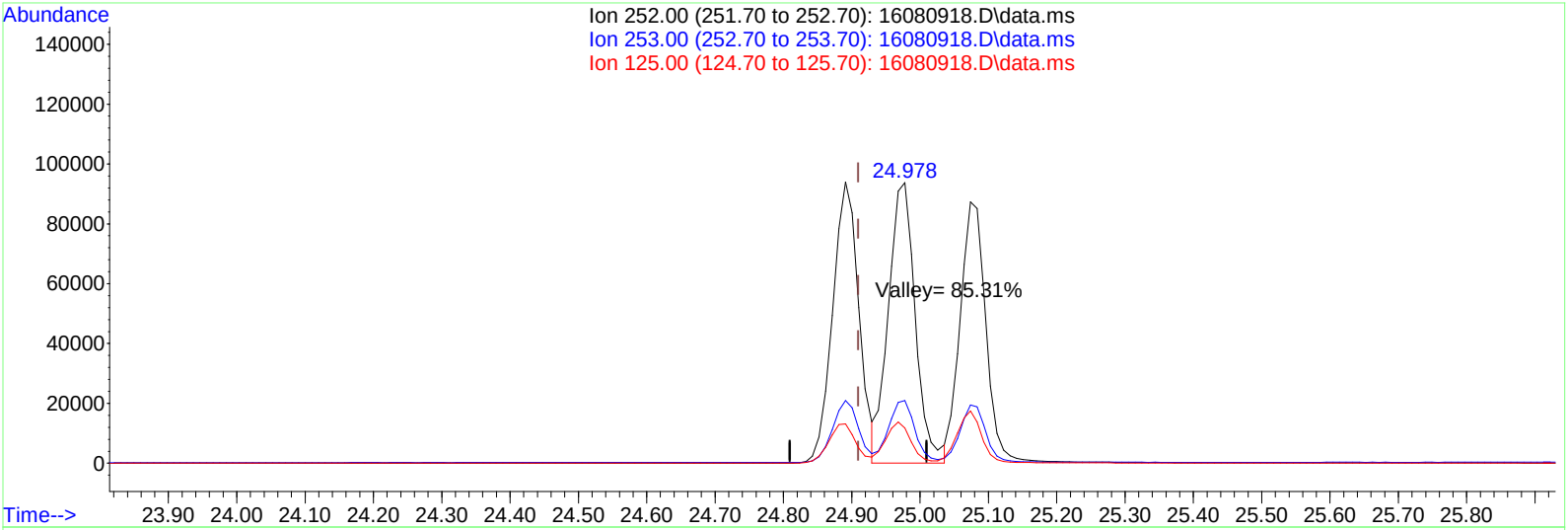
Quant Time: Aug 10 08:00:05 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration

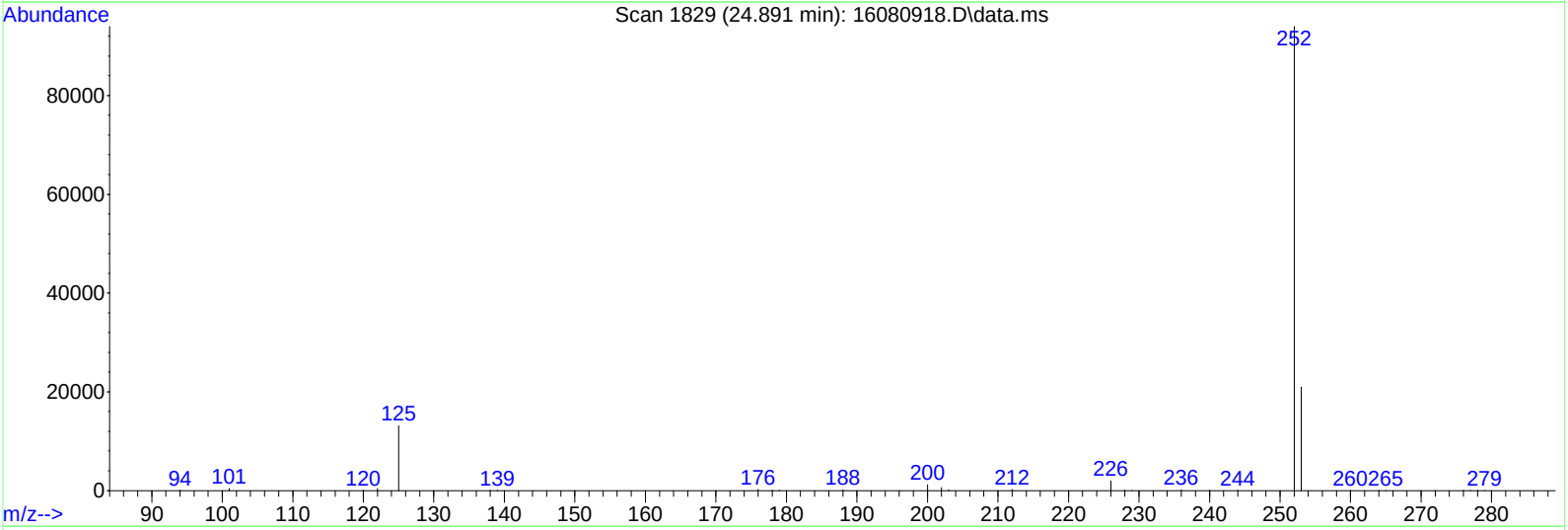


Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\160809\
Data File : 16080918.D
Acq On : 9 Aug 2016 7:46 pm
Operator :
Sample : ICV2-160809
Misc : ICV
ALS Vial : 18 Sample Multiplier: 1

Quant Time: Aug 09 20:18:06 2016
Quant Method : C:\MSDCHEM\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration





TIC: 16080918.D\data.ms

(21) Benzo[b]fluoranthene (T)

24.891min (-0.019) 2019.85ug/kg

response 249332

Ion	Exp%	Act%
252.00	100	100
253.00	21.90	22.06
125.00	13.20	13.91
0.00	0.00	0.00

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160809\
Data File : 16080920.D
Acq On : 9 Aug 2016 9:05 pm
Operator :
Sample : SB-160809
Misc : SBLK
ALS Vial : 20 Sample Multiplier: 1

Quant Time: Aug 10 08:00:08 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	10.993	136	290228	4000.00	ug/kg	110
6) Acenaphthene-d10	13.454	164	218781	4000.00	ug/kg	135
11) Phenanthrene-d10	15.557	188	452409	4000.00	ug/kg	88
17) Chrysene-d12	21.437	240	403953	4000.00	ug/kg	87
20) Perylene-d12	26.643	264	401895	4000.00	ug/kg	96

System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.398	172	4	0.06	ug/kg	0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery = 0.00%#			
15) 4-Terphenyl-d14	18.121	244	20	0.25	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery = 0.01%#			

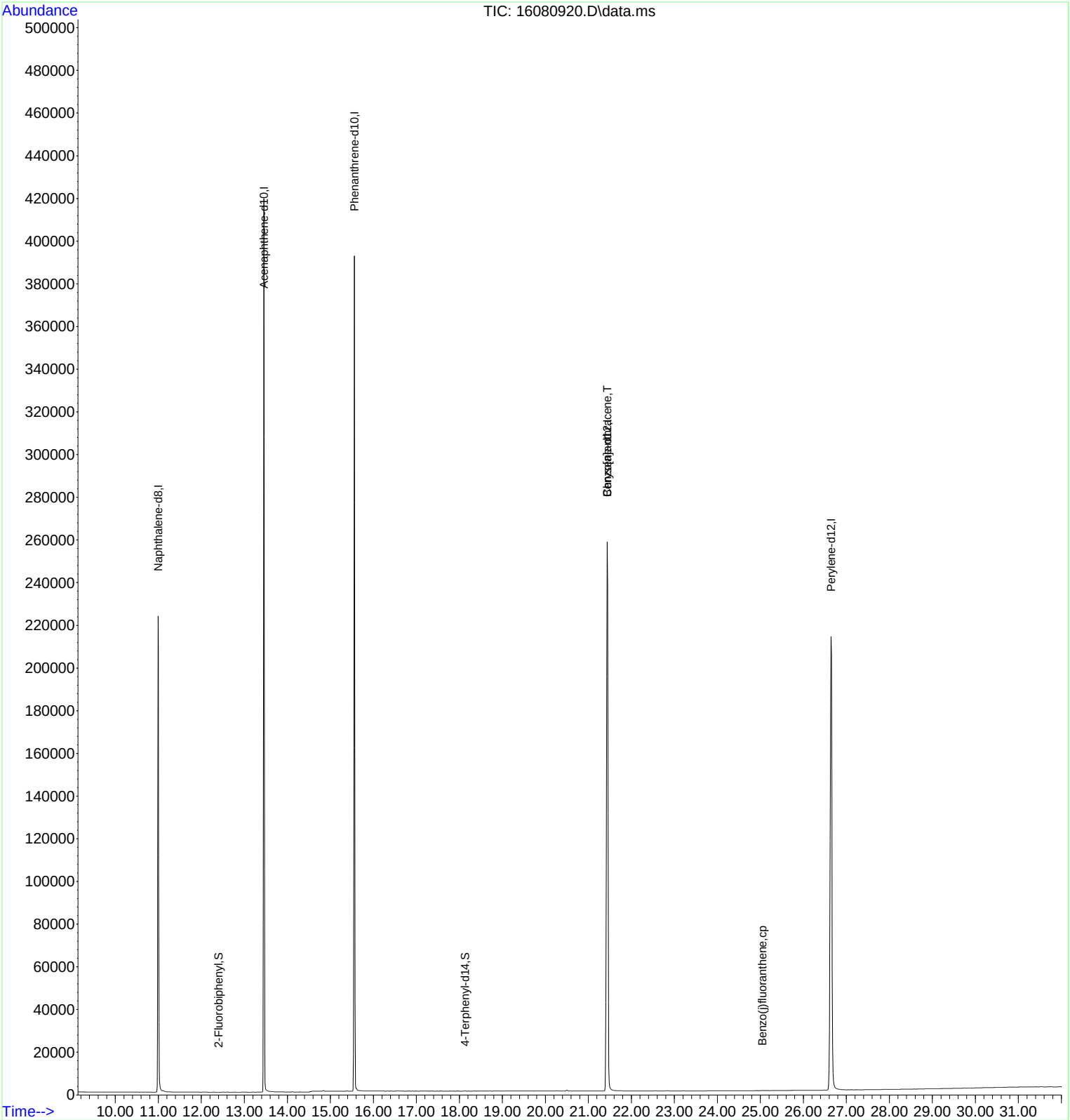
Target Compounds						Qvalue
18) Benzo[a]anthracene	21.437	228	1093	10.74	ug/kg	72
23) Benzo(j)fluoranthene	25.053	252	9	0.11	ug/kg#	1

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160809\
Data File : 16080920.D
Acq On : 9 Aug 2016 9:05 pm
Operator :
Sample : SB-160809
Misc : SBLK
ALS Vial : 20 Sample Multiplier: 1

Quant Time: Aug 10 08:00:08 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160809\
Data File : 16080921.D
Acq On : 9 Aug 2016 9:45 pm
Operator :
Sample : 1607337-01A
Misc : SAMP
ALS Vial : 21 Sample Multiplier: 10

Quant Time: Aug 10 08:01:34 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	10.994	136	314445	4000.00	ug/kg	119
6) Acenaphthene-d10	13.455	164	225042	4000.00	ug/kg	139
11) Phenanthrene-d10	15.557	188	491022	4000.00	ug/kg	95
17) Chrysene-d12	21.438	240	452305	4000.00	ug/kg	98
20) Perylene-d12	26.644	264	445799	4000.00	ug/kg	106

System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.377	172	5606	80.14	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 2.00%#			
15) 4-Terphenyl-d14	18.112	244	6632	76.83	ug/kg	-0.01
Spiked Amount 4000.000	Range 50 - 135		Recovery = 1.92%#			

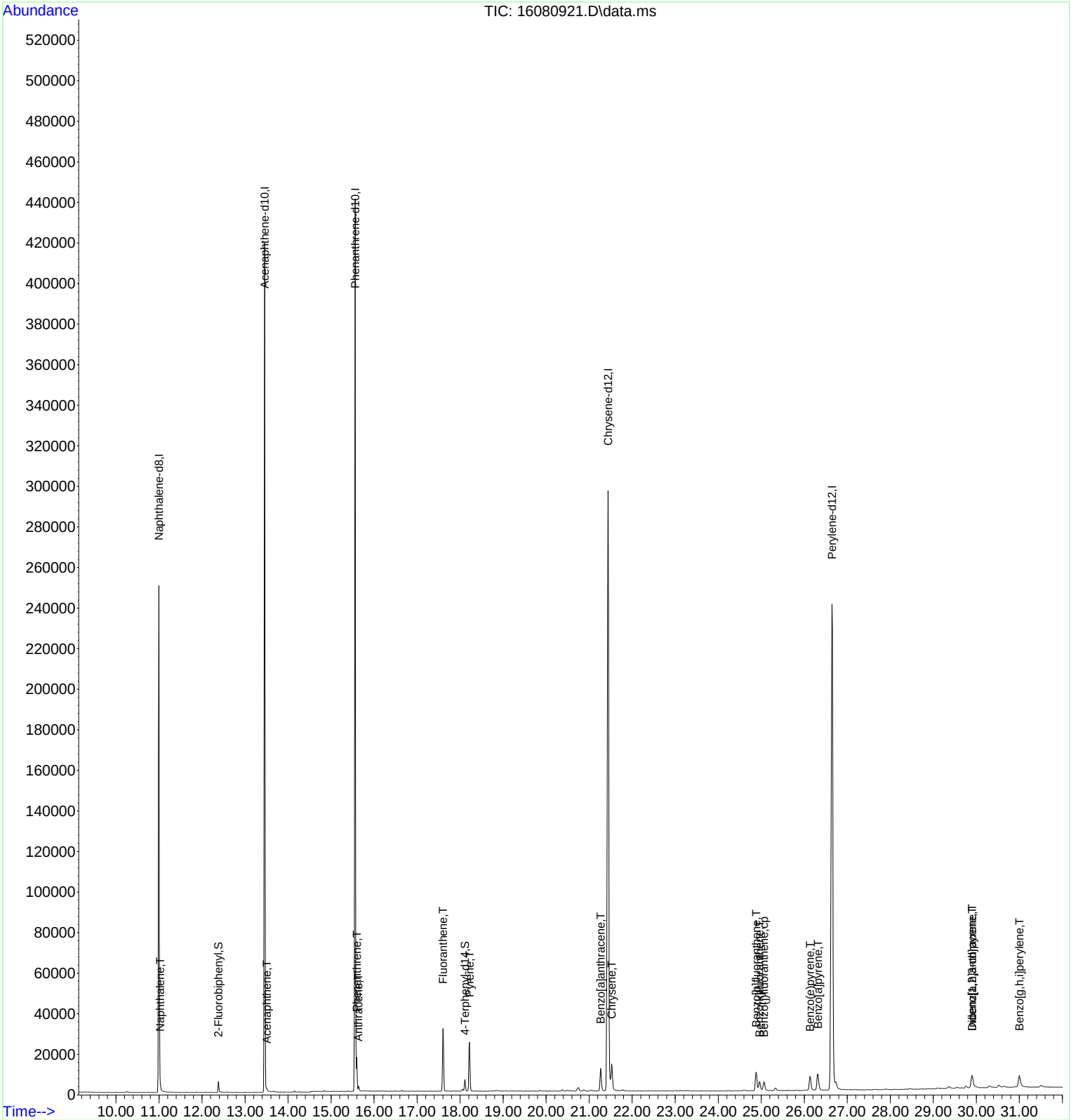
Target Compounds						Qvalue
2) Naphthalene	11.030	128	595	7.93	ug/kg	99
8) Acenaphthene	13.505	153	461	6.78	ug/kg	99
12) Phenanthrene	15.596	178	14445	110.66	ug/kg	99
13) Anthracene	15.634	178	2148	16.76	ug/kg	99
14) Fluoranthene	17.601	202	32600	244.60	ug/kg	97
16) Pyrene	18.218	202	27822	208.79	ug/kg	96
18) Benzo[a]anthracene	21.265	228	15923	139.78	ug/kg	100
19) Chrysene	21.525	228	18835	174.69	ug/kg	100
21) Benzo[b]fluoranthene	24.880	252	17935	158.68	ug/kg	99
22) Benzo[k]fluoranthene	24.967	252	7345	78.01	ug/kg	96
23) Benzo(j)fluoranthene	25.063	252	7319	80.11	ug/kg	93
24) Benzo(e)pyrene	26.133	252	13656	121.41	ug/kg	96
25) Benzo[a]pyrene	26.316	252	17210	162.71	ug/kg	99
26) Indeno[1,2,3-cd]pyrene	29.902	276	12763	97.27	ug/kg	89
27) Dibenz[a,h]anthracene	29.893	278	2537	24.11	ug/kg	94
28) Benzo[g,h,i]perylene	31.001	276	13514	116.02	ug/kg	99

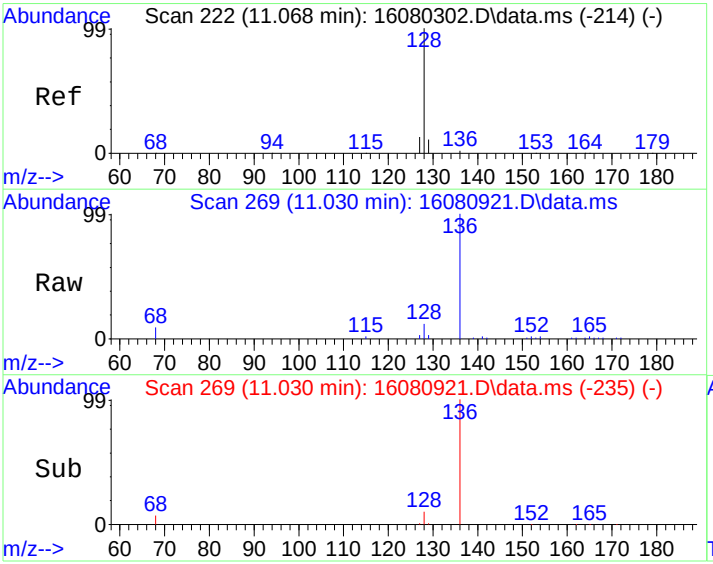
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160809\
Data File : 16080921.D
Acq On : 9 Aug 2016 9:45 pm
Operator :
Sample : 1607337-01A
Misc : SAMP
ALS Vial : 21 Sample Multiplier: 10

Quant Time: Aug 10 08:01:34 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration

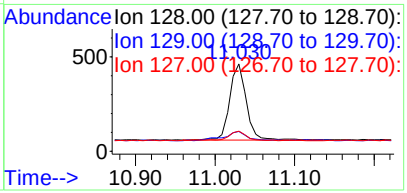


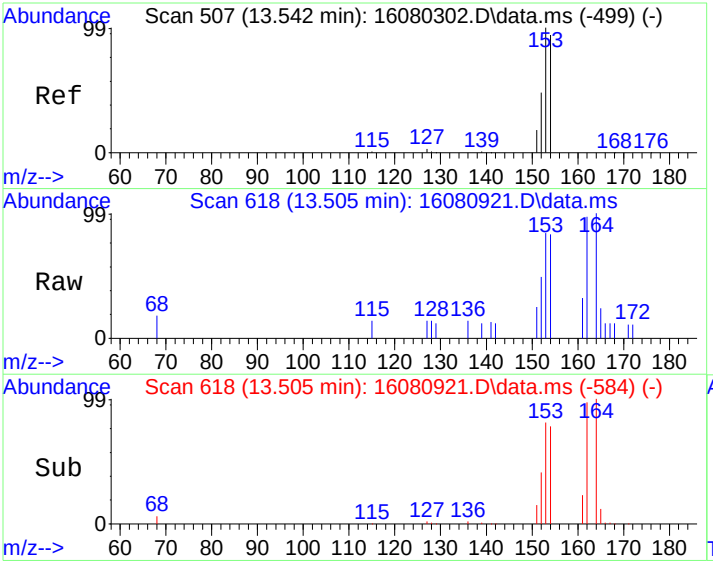


#2
Naphthalene
Concen: 7.93 ug/kg
RT: 11.030 min Scan# 269
Delta R.T. -0.008 min
Lab File: 16080921.D
Acq: 9 Aug 2016 9:45 pm

Tgt Ion:128 Resp: 595

Ion	Ratio	Lower	Upper
128	100		
129	11.9	0.0	31.0
127	12.4	0.0	32.5

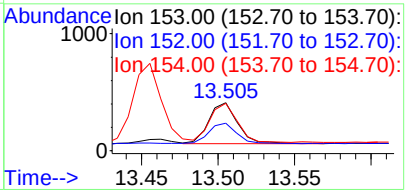


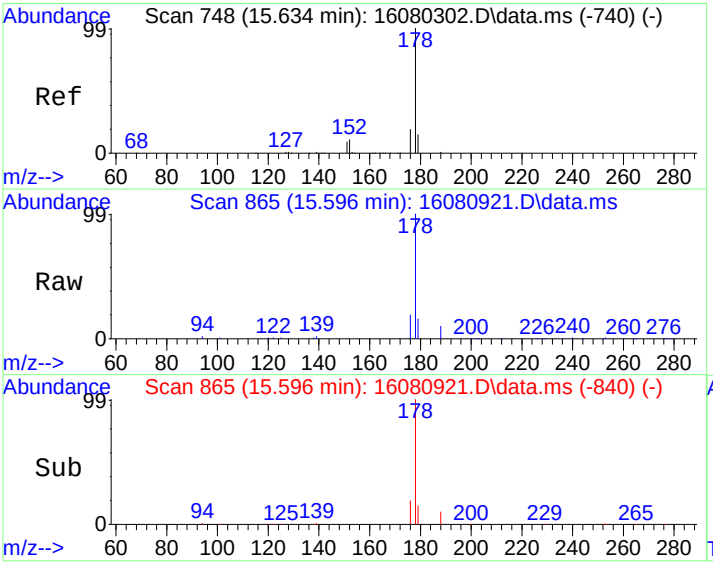


#8
Acenaphthene
Concen: 6.78 ug/kg
RT: 13.505 min Scan# 618
Delta R.T. -0.008 min
Lab File: 16080921.D
Acq: 9 Aug 2016 9:45 pm

Tgt Ion:153 Resp: 461

Ion	Ratio	Lower	Upper
153	100		
152	49.7	27.7	67.7
154	95.4	75.7	115.7

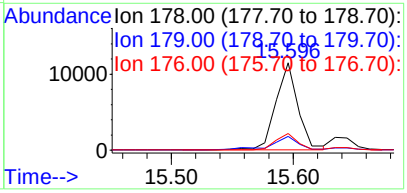


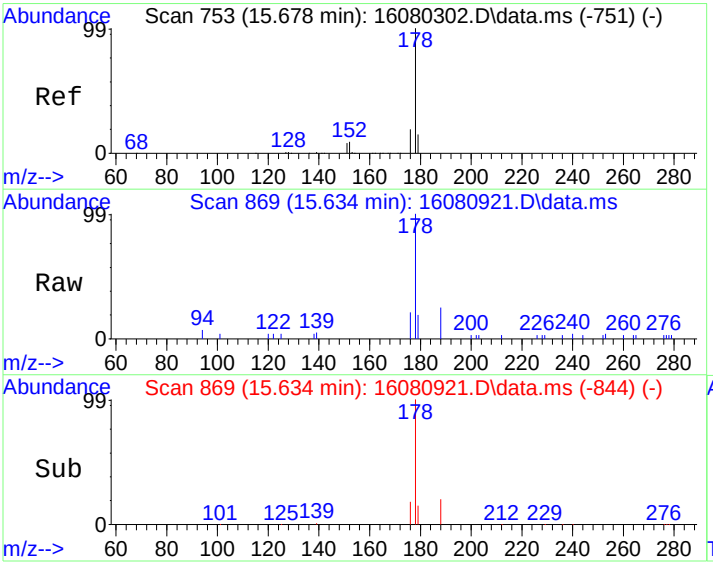


#12
Phenanthrene
Concen: 110.66 ug/kg
RT: 15.596 min Scan# 865
Delta R.T. -0.010 min
Lab File: 16080921.D
Acq: 9 Aug 2016 9:45 pm

Tgt Ion:178 Resp: 14445

Ion	Ratio	Lower	Upper
178	100		
179	15.2	0.0	35.7
176	18.7	0.0	38.8

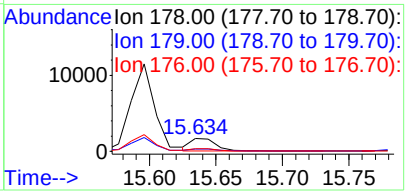


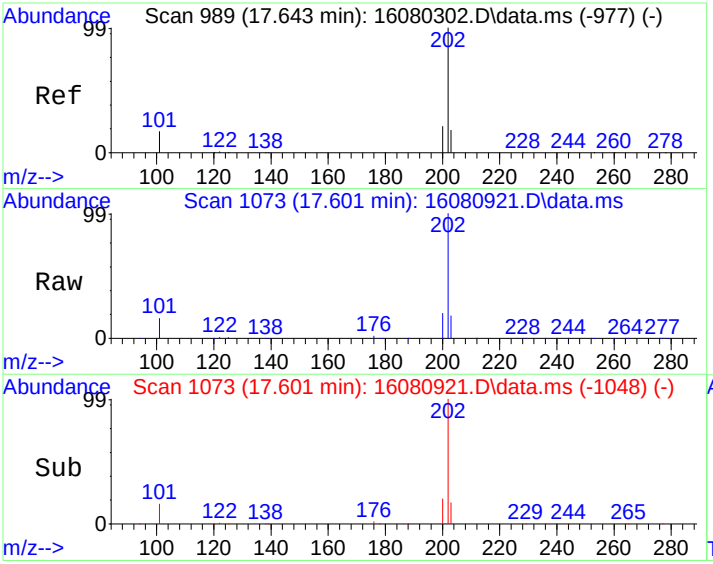


#13
Anthracene
Concen: 16.76 ug/kg
RT: 15.634 min Scan# 869
Delta R.T. -0.011 min
Lab File: 16080921.D
Acq: 9 Aug 2016 9:45 pm

Tgt Ion:178 Resp: 2148

Ion	Ratio	Lower	Upper
178	100		
179	15.0	0.0	35.5
176	18.1	0.0	38.7

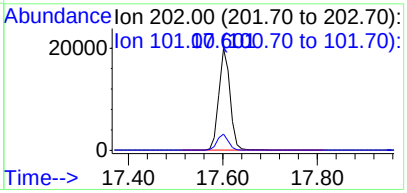


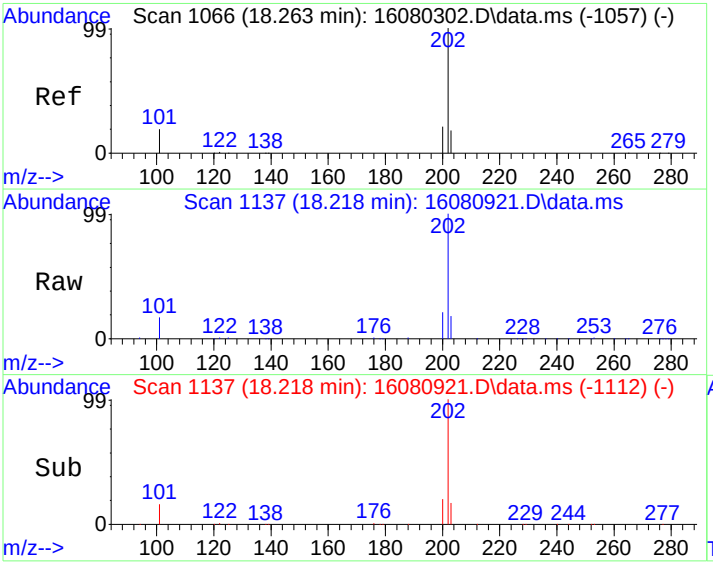


#14
Fluoranthene
Concen: 244.60 ug/kg
RT: 17.601 min Scan# 1073
Delta R.T. -0.011 min
Lab File: 16080921.D
Acq: 9 Aug 2016 9:45 pm

Tgt Ion:202 Resp: 32600

Ion	Ratio	Lower	Upper
202	100		
101	15.8	0.0	37.2

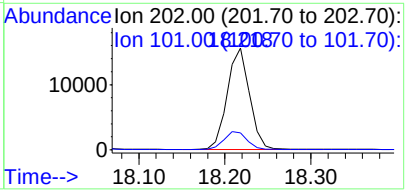


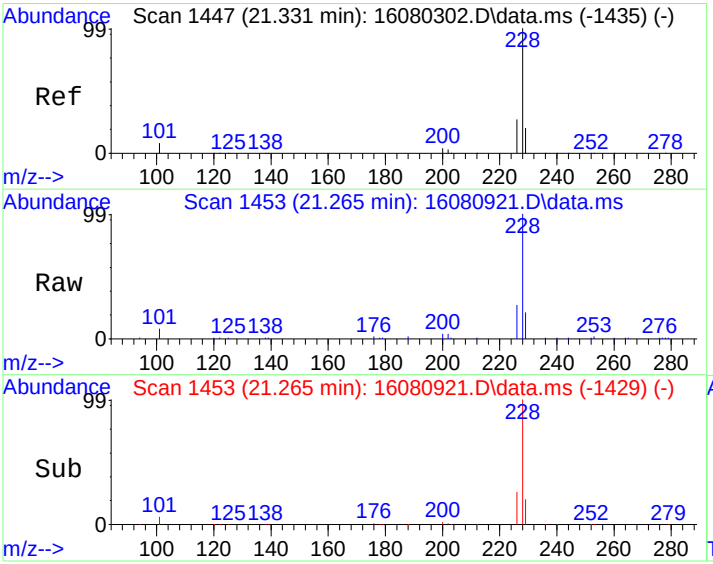


#16
Pyrene
Concen: 208.79 ug/kg
RT: 18.218 min Scan# 1137
Delta R.T. -0.011 min
Lab File: 16080921.D
Acq: 9 Aug 2016 9:45 pm

Tgt Ion:202 Resp: 27822

Ion	Ratio	Lower	Upper
202	100		
101	16.2	0.0	38.0

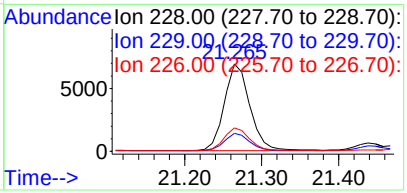


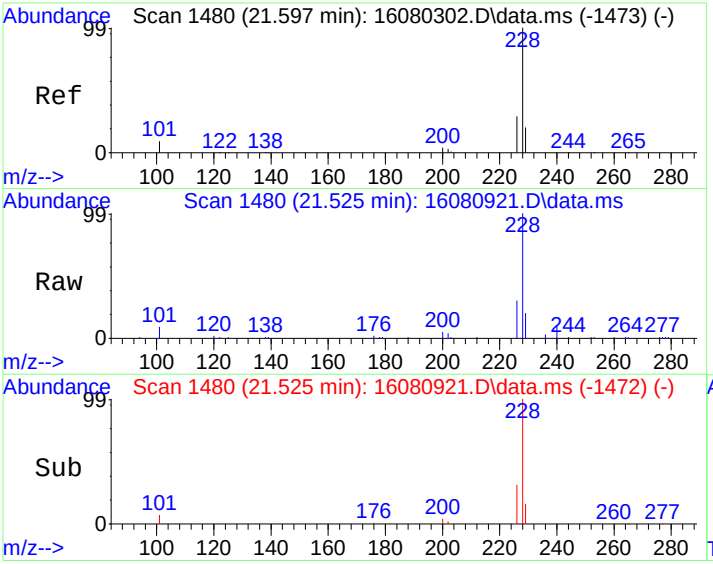


#18
Benzo[a]anthracene
Concen: 139.78 ug/kg
RT: 21.265 min Scan# 1453
Delta R.T. -0.020 min
Lab File: 16080921.D
Acq: 9 Aug 2016 9:45 pm

Tgt Ion:228 Resp: 15923

Ion	Ratio	Lower	Upper
228	100		
229	19.8	0.0	39.9
226	26.3	6.7	46.7

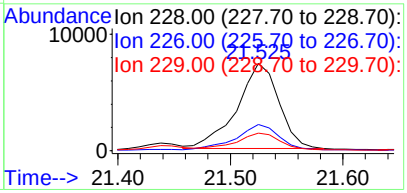


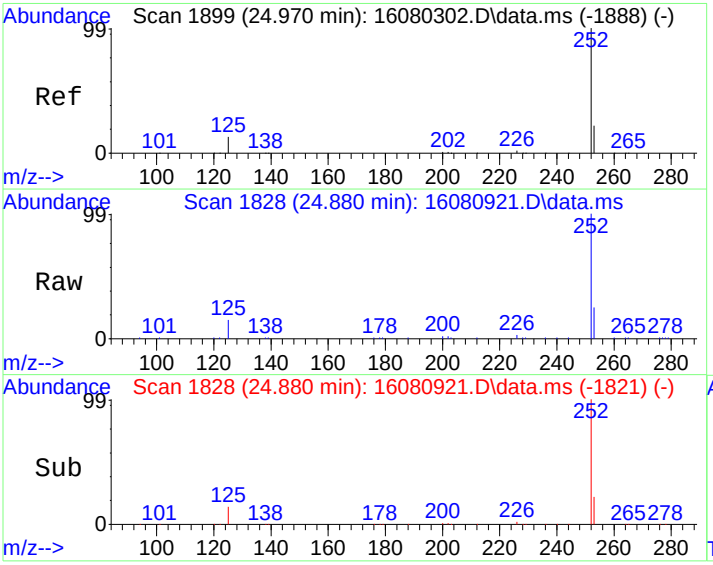


#19
Chrysene
Concen: 174.69 ug/kg
RT: 21.525 min Scan# 1480
Delta R.T. -0.020 min
Lab File: 16080921.D
Acq: 9 Aug 2016 9:45 pm

Tgt Ion:228 Resp: 18835

Ion	Ratio	Lower	Upper
228	100		
226	29.4	9.3	49.3
229	19.4	0.0	39.8

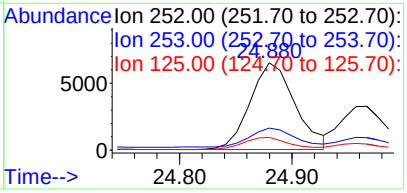


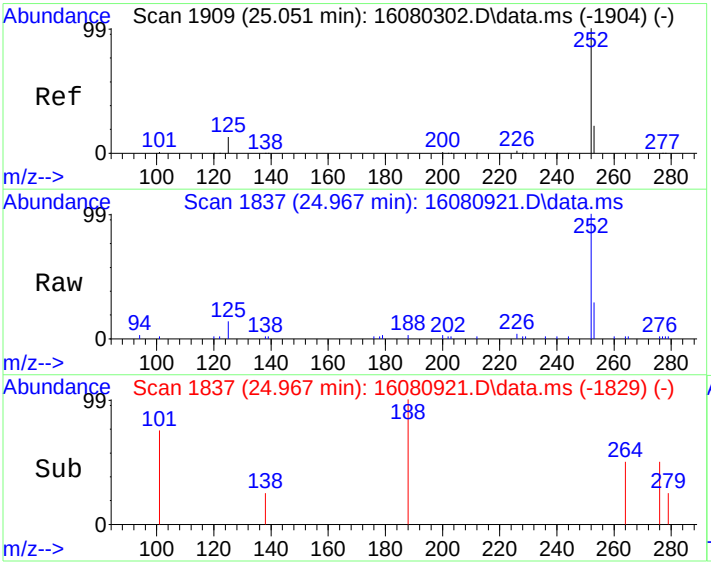


#21
Benzo[b]fluoranthene
Concen: 158.68 ug/kg
RT: 24.880 min Scan# 1828
Delta R.T. -0.030 min
Lab File: 16080921.D
Acq: 9 Aug 2016 9:45 pm

Tgt Ion:252 Resp: 17935

Ion	Ratio	Lower	Upper
252	100		
253	22.0	1.9	41.9
125	13.8	0.0	33.2

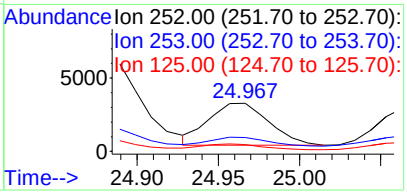


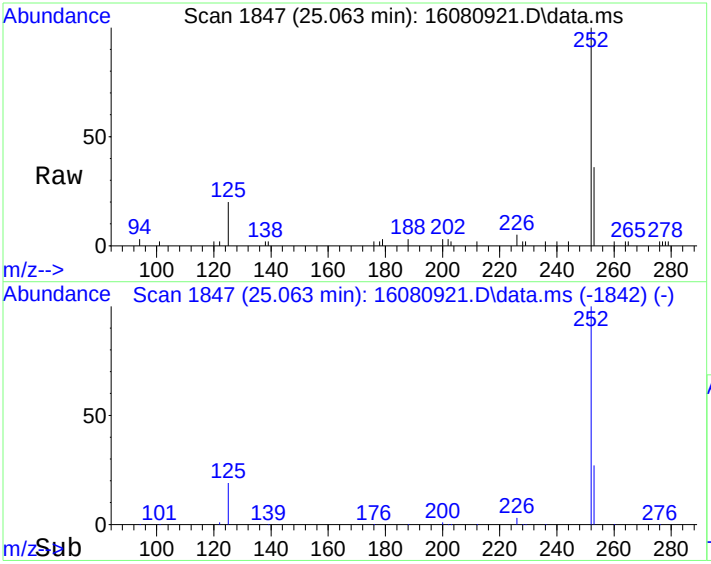


#22
Benzo[k]fluoranthene
Concen: 78.01 ug/kg
RT: 24.967 min Scan# 1837
Delta R.T. -0.020 min
Lab File: 16080921.D
Acq: 9 Aug 2016 9:45 pm

Tgt Ion:252 Resp: 7345

Ion	Ratio	Lower	Upper
252	100		
253	20.5	2.1	42.1
125	12.0	0.0	33.9

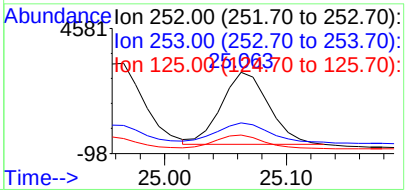


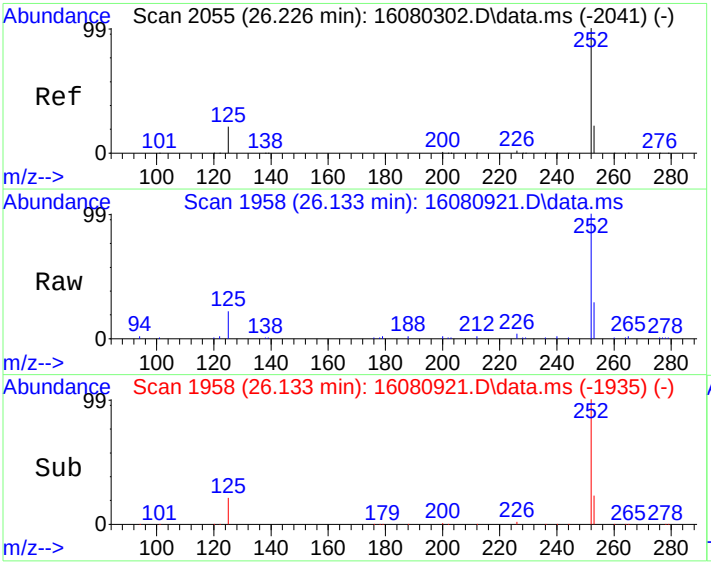


#23
Benzo(j)fluoranthene
Concen: 80.11 ug/kg
RT: 25.063 min Scan# 1847
Delta R.T. -0.030 min
Lab File: 16080921.D
Acq: 9 Aug 2016 9:45 pm

Tgt Ion:252 Resp: 7319

Ion	Ratio	Lower	Upper
252	100		
253	28.1	1.9	41.9
125	19.1	0.0	39.4

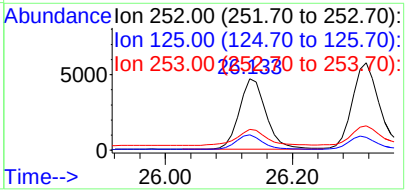


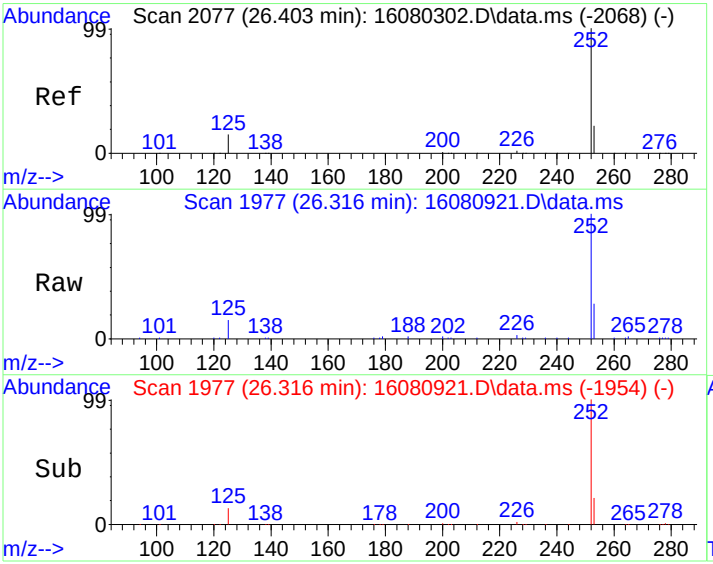


#24
Benzo(e)pyrene
Concen: 121.41 ug/kg
RT: 26.133 min Scan# 1958
Delta R.T. -0.030 min
Lab File: 16080921.D
Acq: 9 Aug 2016 9:45 pm

Tgt Ion:252 Resp: 13656

Ion	Ratio	Lower	Upper
252	100		
125	20.1	0.5	40.5
253	25.2	2.1	42.1

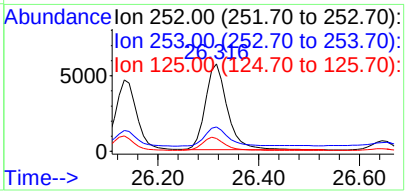


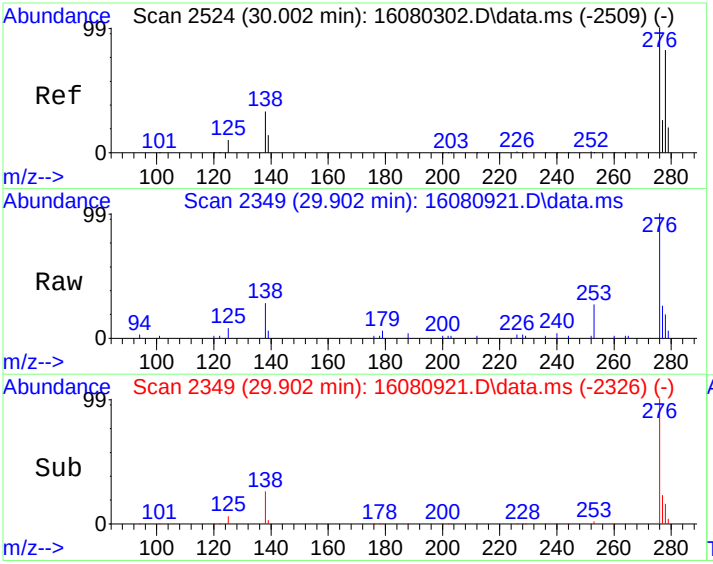


#25
Benzo[a]pyrene
Concen: 162.71 ug/kg
RT: 26.316 min Scan# 1977
Delta R.T. -0.030 min
Lab File: 16080921.D
Acq: 9 Aug 2016 9:45 pm

Tgt Ion:252 Resp: 17210

Ion	Ratio	Lower	Upper
252	100		
253	22.1	1.9	41.9
125	13.9	0.0	33.5

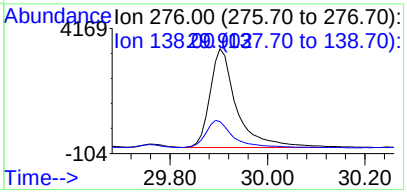


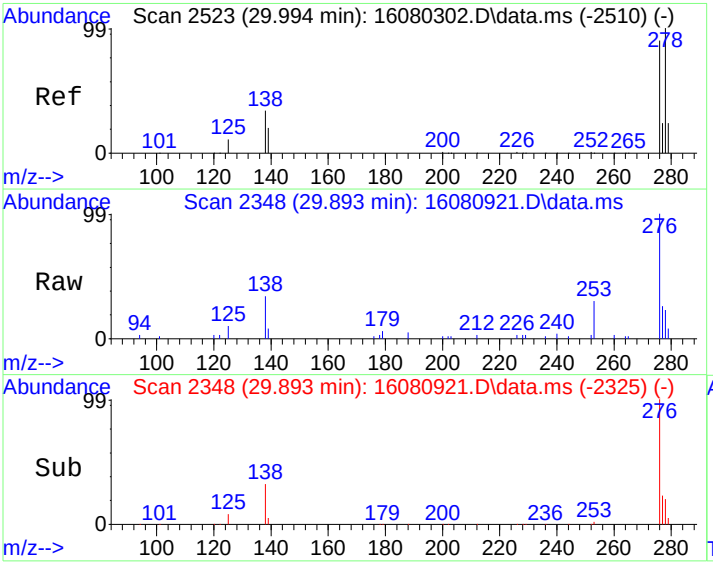


#26
Indeno[1,2,3-cd]pyrene
Concen: 97.27 ug/kg
RT: 29.902 min Scan# 2349
Delta R.T. -0.030 min
Lab File: 16080921.D
Acq: 9 Aug 2016 9:45 pm

Tgt Ion:276 Resp: 12763

Ion	Ratio	Lower	Upper
276	100		
138	26.1	12.2	52.2

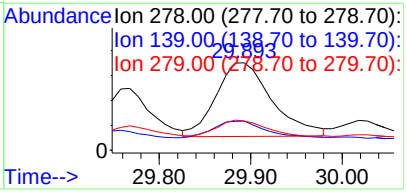


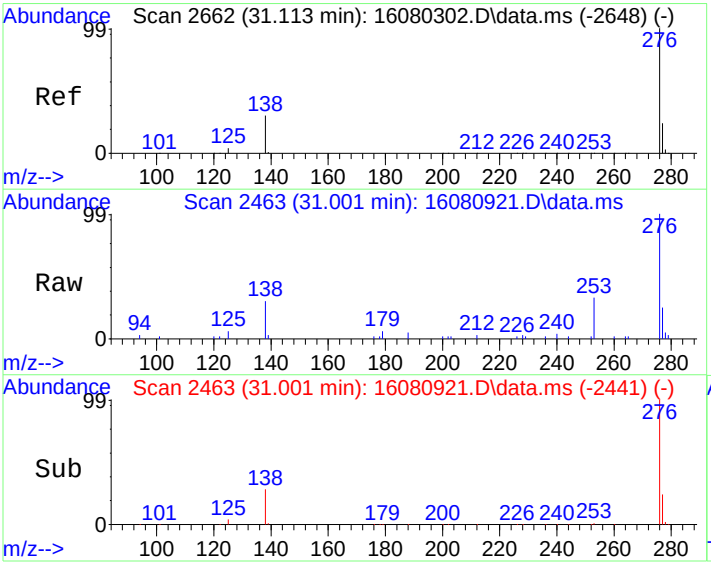


#27
Dibenz[a,h]anthracene
Concen: 24.11 ug/kg
RT: 29.893 min Scan# 2348
Delta R.T. -0.030 min
Lab File: 16080921.D
Acq: 9 Aug 2016 9:45 pm

Tgt Ion:278 Resp: 2537

Ion	Ratio	Lower	Upper
278	100		
139	24.4	0.2	40.2
279	21.8	3.9	43.9

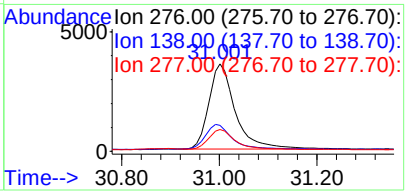




#28
Benzo[g,h,i]perylene
Concen: 116.02 ug/kg
RT: 31.001 min Scan# 2463
Delta R.T. -0.040 min
Lab File: 16080921.D
Acq: 9 Aug 2016 9:45 pm

Tgt Ion:276 Resp: 13514

Ion	Ratio	Lower	Upper
276	100		
138	27.8	6.9	46.9
277	23.5	3.9	43.9



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160809\
Data File : 16080922.D
Acq On : 9 Aug 2016 10:25 pm
Operator :
Sample : 1607337-02A
Misc : SAMP
ALS Vial : 22 Sample Multiplier: 10

Quant Time: Aug 10 08:01:43 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	10.993	136	315907	4000.00	ug/kg	119
6) Acenaphthene-d10	13.454	164	229499	4000.00	ug/kg	141
11) Phenanthrene-d10	15.558	188	491872	4000.00	ug/kg	96
17) Chrysene-d12	21.439	240	449880	4000.00	ug/kg	97
20) Perylene-d12	26.645	264	443910	4000.00	ug/kg	106

System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.383	172	5585	79.47	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 1.99%#			
15) 4-Terphenyl-d14	18.113	244	6366	73.62	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery = 1.84%#			

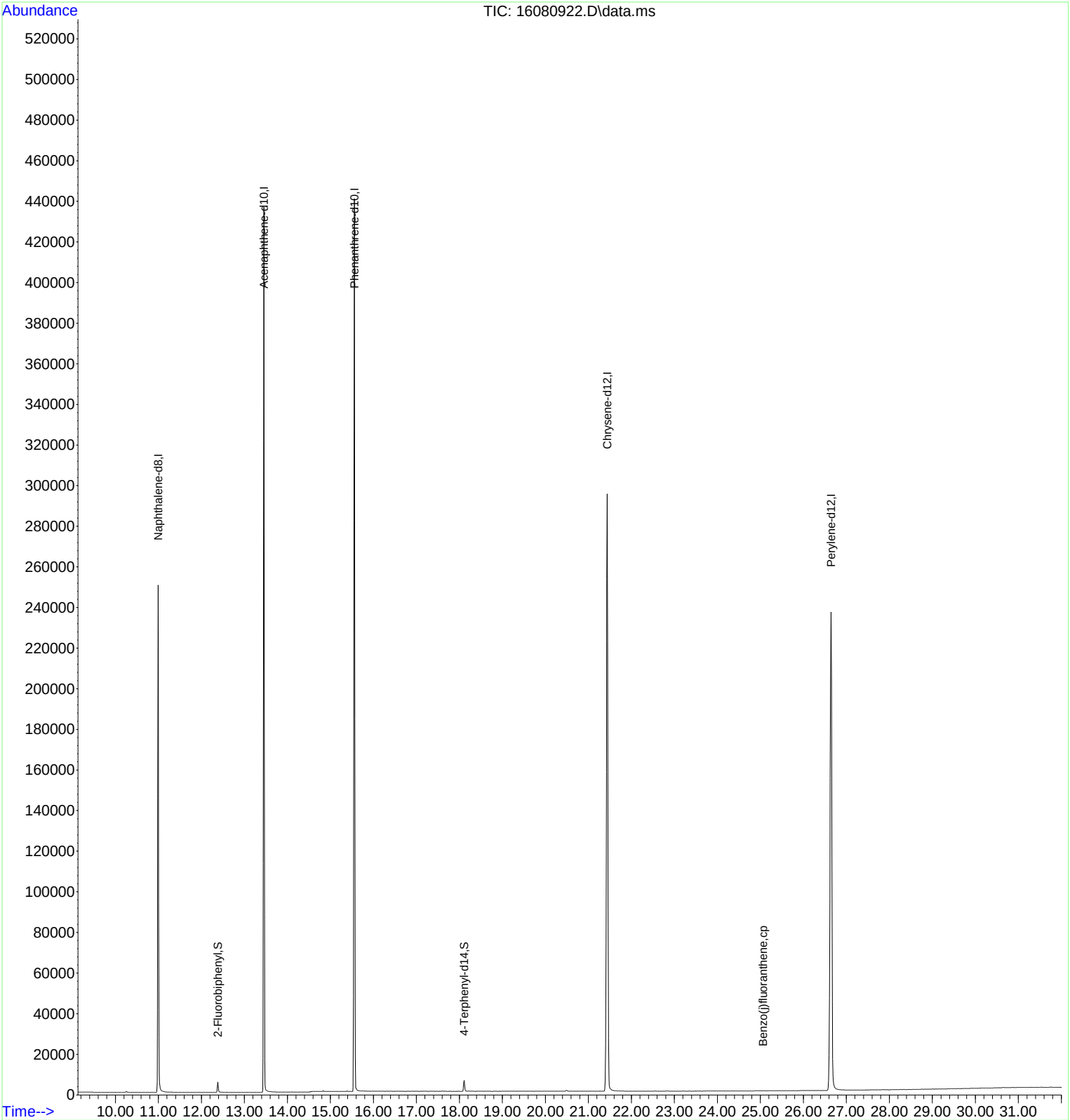
Target Compounds						Qvalue
23) Benzo(j)fluoranthene	25.064	252	40	0.44	ug/kg	83

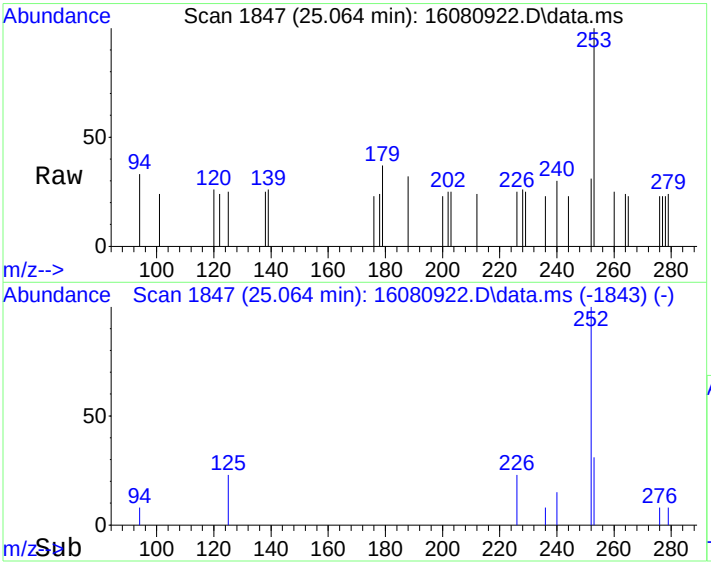
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160809\
Data File : 16080922.D
Acq On : 9 Aug 2016 10:25 pm
Operator :
Sample : 1607337-02A
Misc : SAMP
ALS Vial : 22 Sample Multiplier: 10

Quant Time: Aug 10 08:01:43 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration

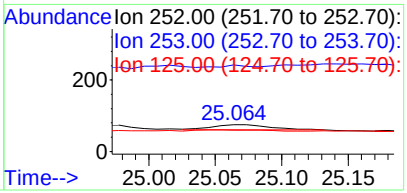




#23
Benzo(j)fluoranthene
Concen: 0.44 ug/kg
RT: 25.064 min Scan# 1847
Delta R.T. -0.029 min
Lab File: 16080922.D
Acq: 9 Aug 2016 10:25 pm

Tgt Ion:252 Resp: 40

Ion	Ratio	Lower	Upper
252	100		
253	22.5	1.9	41.9
125	35.0	0.0	39.4



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160809\
Data File : 16080923.D
Acq On : 9 Aug 2016 11:05 pm
Operator :
Sample : 1607337-03A
Misc : SAMP
ALS Vial : 23 Sample Multiplier: 10

Quant Time: Aug 10 08:01:47 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	10.993	136	326087	4000.00	ug/kg	123
6) Acenaphthene-d10	13.454	164	228593	4000.00	ug/kg	141
11) Phenanthrene-d10	15.559	188	498913	4000.00	ug/kg	97
17) Chrysene-d12	21.439	240	461961	4000.00	ug/kg	100
20) Perylene-d12	26.645	264	461228	4000.00	ug/kg	110

System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.384	172	5455	75.20	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	1.88%#		
15) 4-Terphenyl-d14	18.113	244	6573	74.94	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery =	1.87%#		

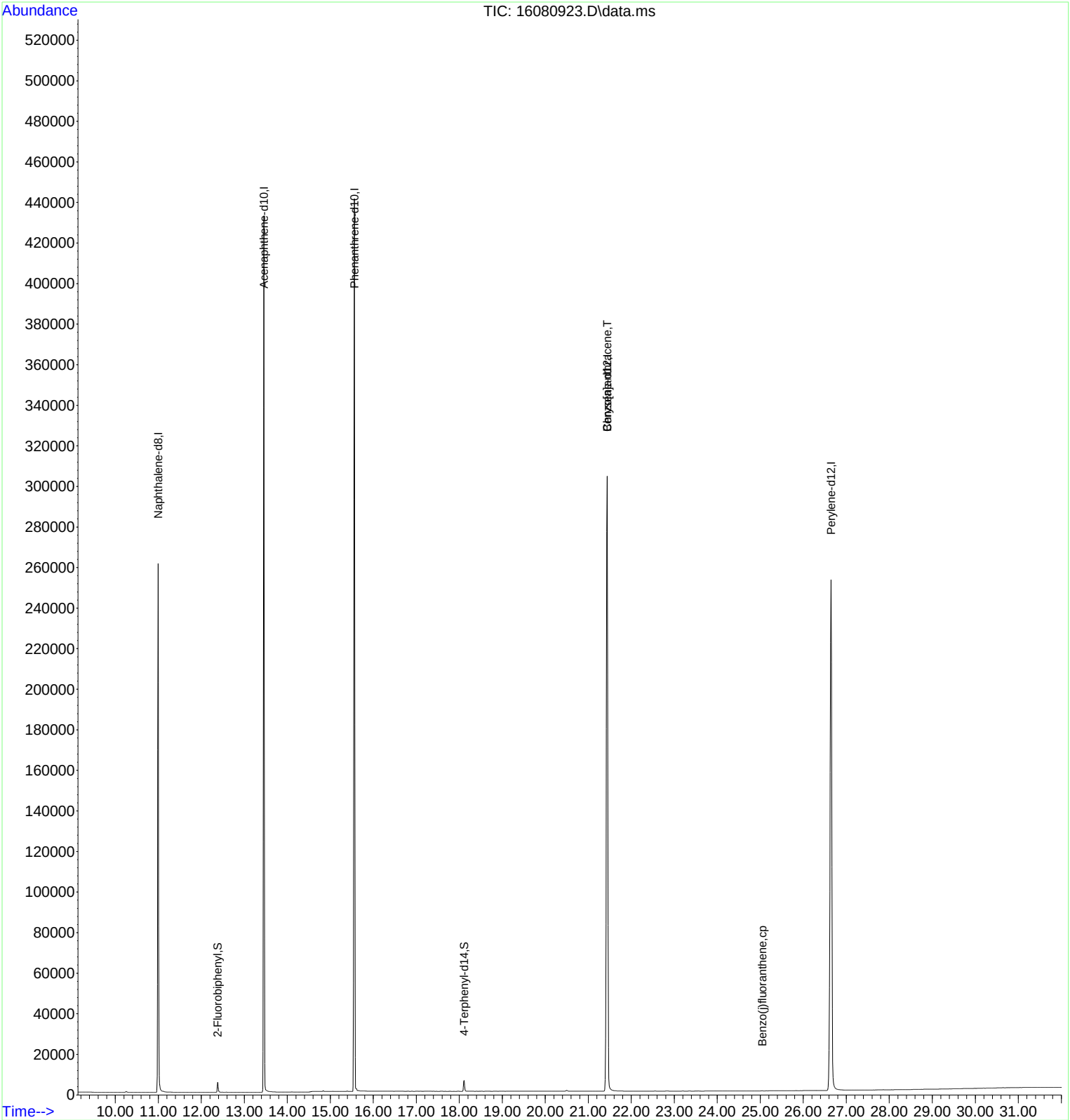
Target Compounds						Qvalue
18) Benzo[a]anthracene	21.439	228	1263	10.86	ug/kg	71
23) Benzo(j)fluoranthene	25.055	252	6	0.06	ug/kg#	1

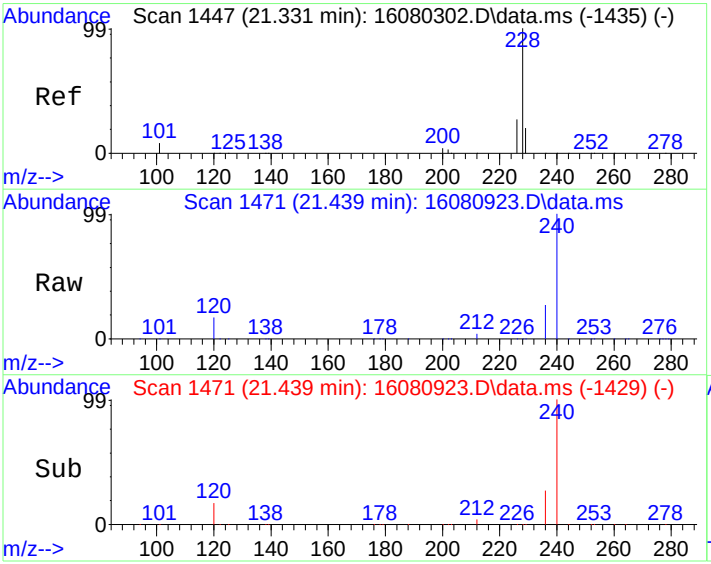
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160809\
Data File : 16080923.D
Acq On : 9 Aug 2016 11:05 pm
Operator :
Sample : 1607337-03A
Misc : SAMP
ALS Vial : 23 Sample Multiplier: 10

Quant Time: Aug 10 08:01:47 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration

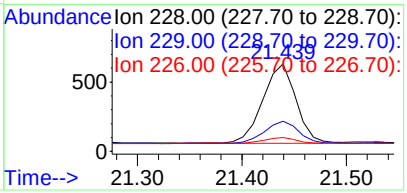


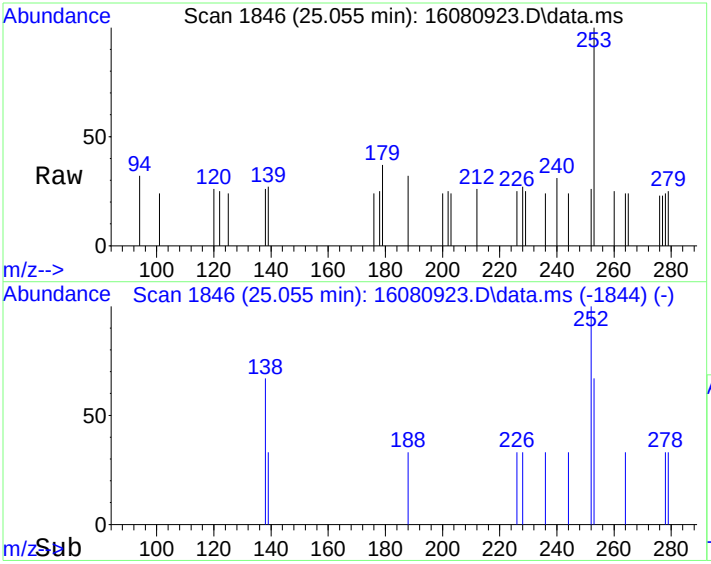


#18
Benzo[a]anthracene
Concen: 10.86 ug/kg
RT: 21.439 min Scan# 1471
Delta R.T. 0.155 min
Lab File: 16080923.D
Acq: 9 Aug 2016 11:05 pm

Tgt Ion:228 Resp: 1263

Ion	Ratio	Lower	Upper
228	100		
229	27.8	0.0	39.9
226	7.3	6.7	46.7

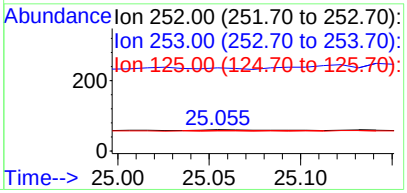




#23
Benzo(j)fluoranthene
Concen: 0.06 ug/kg
RT: 25.055 min Scan# 1846
Delta R.T. -0.038 min
Lab File: 16080923.D
Acq: 9 Aug 2016 11:05 pm

Tgt Ion:252 Resp: 6

Ion	Ratio	Lower	Upper
252	100		
253	533.3	1.9	41.9#
125	33.3	0.0	39.4



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160809\
Data File : 16080924.D
Acq On : 9 Aug 2016 11:45 pm
Operator :
Sample : 1607337-04A
Misc : SAMP
ALS Vial : 24 Sample Multiplier: 10

Quant Time: Aug 10 08:01:51 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	10.993	136	334091	4000.00	ug/kg	126
6) Acenaphthene-d10	13.454	164	233583	4000.00	ug/kg	144
11) Phenanthrene-d10	15.558	188	514824	4000.00	ug/kg	100
17) Chrysene-d12	21.439	240	482421	4000.00	ug/kg	104
20) Perylene-d12	26.645	264	475309	4000.00	ug/kg	113

System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.376	172	5510	74.14	ug/kg	-0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery = 1.85%#			
15) 4-Terphenyl-d14	18.113	244	6631	73.26	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery = 1.83%#			

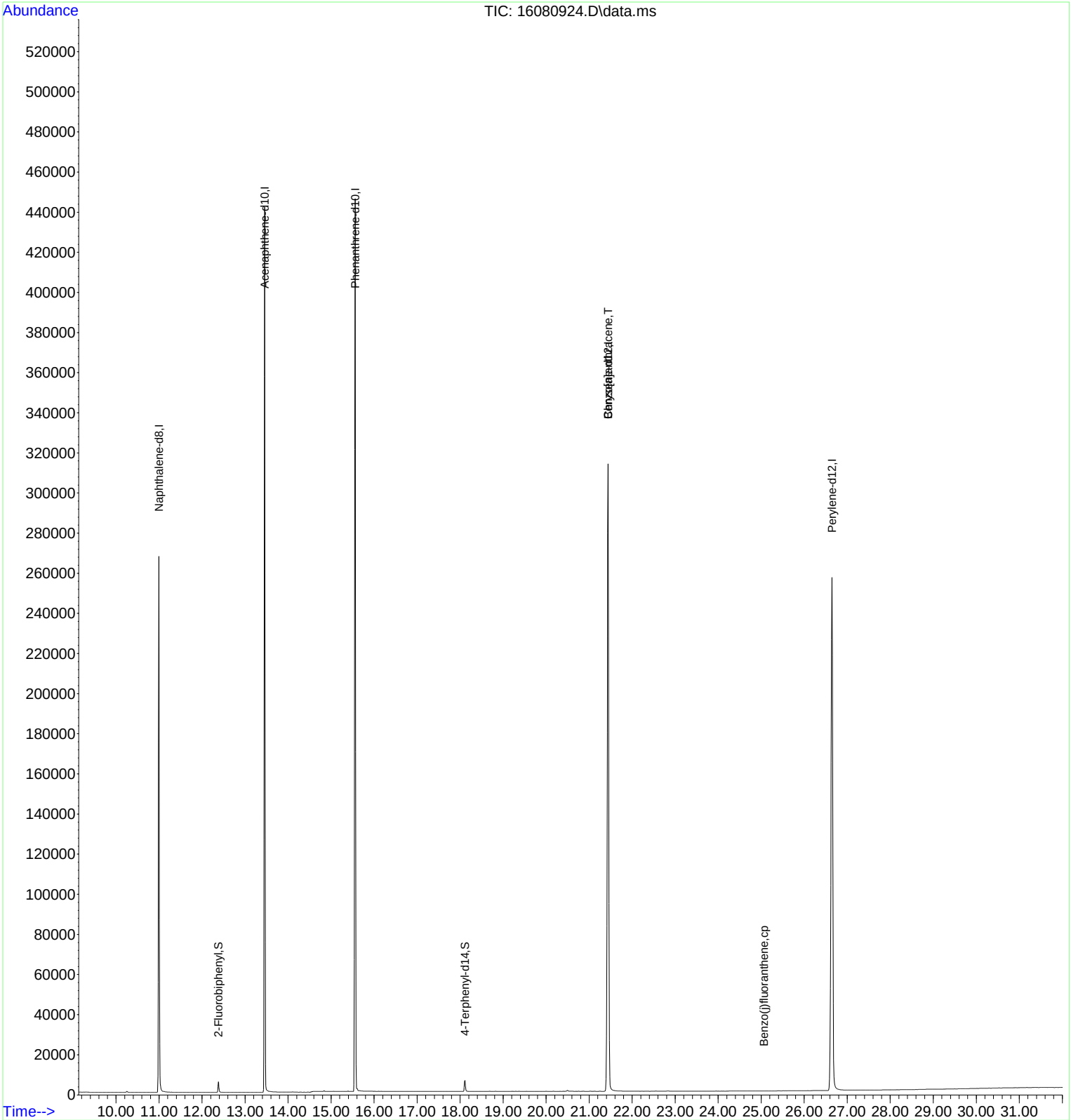
Target Compounds						Qvalue
18) Benzo[a]anthracene	21.439	228	1317	~~10.84~~	~~ug/kg~~	~~71~~
23) Benzo(j)fluoranthene	25.054	252	6	0.06	ug/kg#	1

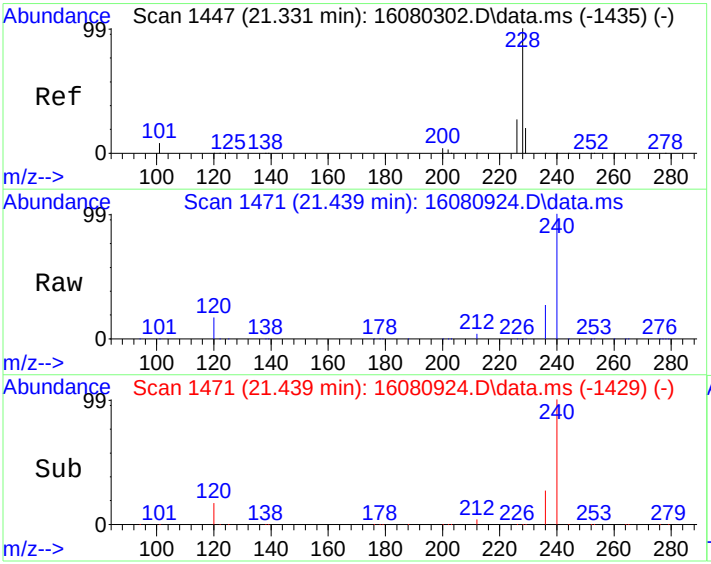
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160809\
Data File : 16080924.D
Acq On : 9 Aug 2016 11:45 pm
Operator :
Sample : 1607337-04A
Misc : SAMP
ALS Vial : 24 Sample Multiplier: 10

Quant Time: Aug 10 08:01:51 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration

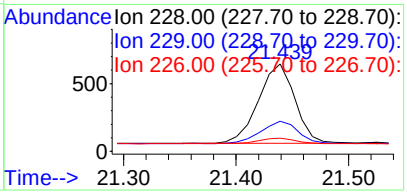


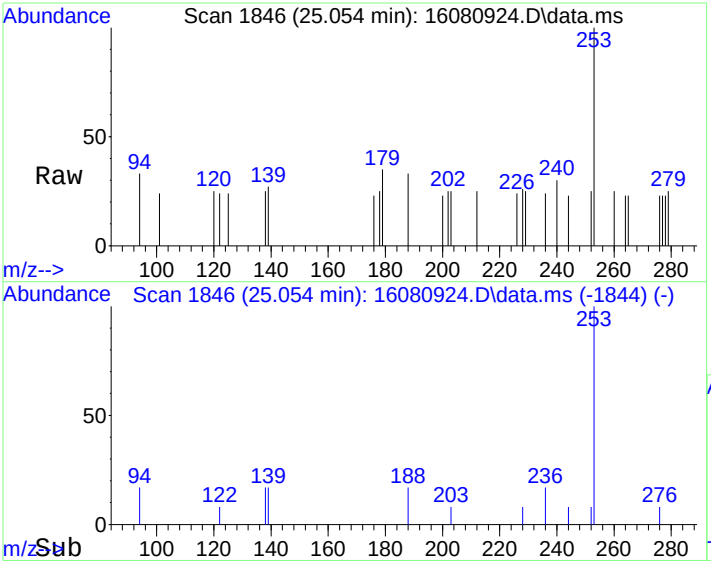


#18
Benzo[a]anthracene
Concen: 10.84 ug/kg
RT: 21.439 min Scan# 1471
Delta R.T. 0.154 min
Lab File: 16080924.D
Acq: 9 Aug 2016 11:45 pm

Tgt Ion:228 Resp: 1317

Ion	Ratio	Lower	Upper
228	100		
229	27.9	0.0	39.9
226	7.2	6.7	46.7

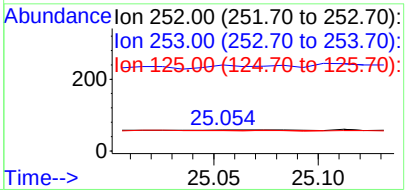




#23
Benzo(j)fluoranthene
Concen: 0.06 ug/kg
RT: 25.054 min Scan# 1846
Delta R.T. -0.038 min
Lab File: 16080924.D
Acq: 9 Aug 2016 11:45 pm

Tgt Ion:252 Resp: 6

Ion	Ratio	Lower	Upper
252	100		
253	316.7	1.9	41.9#
125	0.0	0.0	39.4



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160809\
Data File : 16080925.D
Acq On : 10 Aug 2016 12:24 am
Operator :
Sample : 1607337-05A
Misc : SAMP
ALS Vial : 25 Sample Multiplier: 10

Quant Time: Aug 10 08:01:54 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	10.990	136	343529	4000.00	ug/kg	130
6) Acenaphthene-d10	13.451	164	238786	4000.00	ug/kg	147
11) Phenanthrene-d10	15.559	188	513629	4000.00	ug/kg	100
17) Chrysene-d12	21.439	240	489809	4000.00	ug/kg	106
20) Perylene-d12	26.645	264	484354	4000.00	ug/kg	115

System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.380	172	5751	75.25	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 1.88%#			
15) 4-Terphenyl-d14	18.113	244	7021	77.75	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery = 1.94%#			

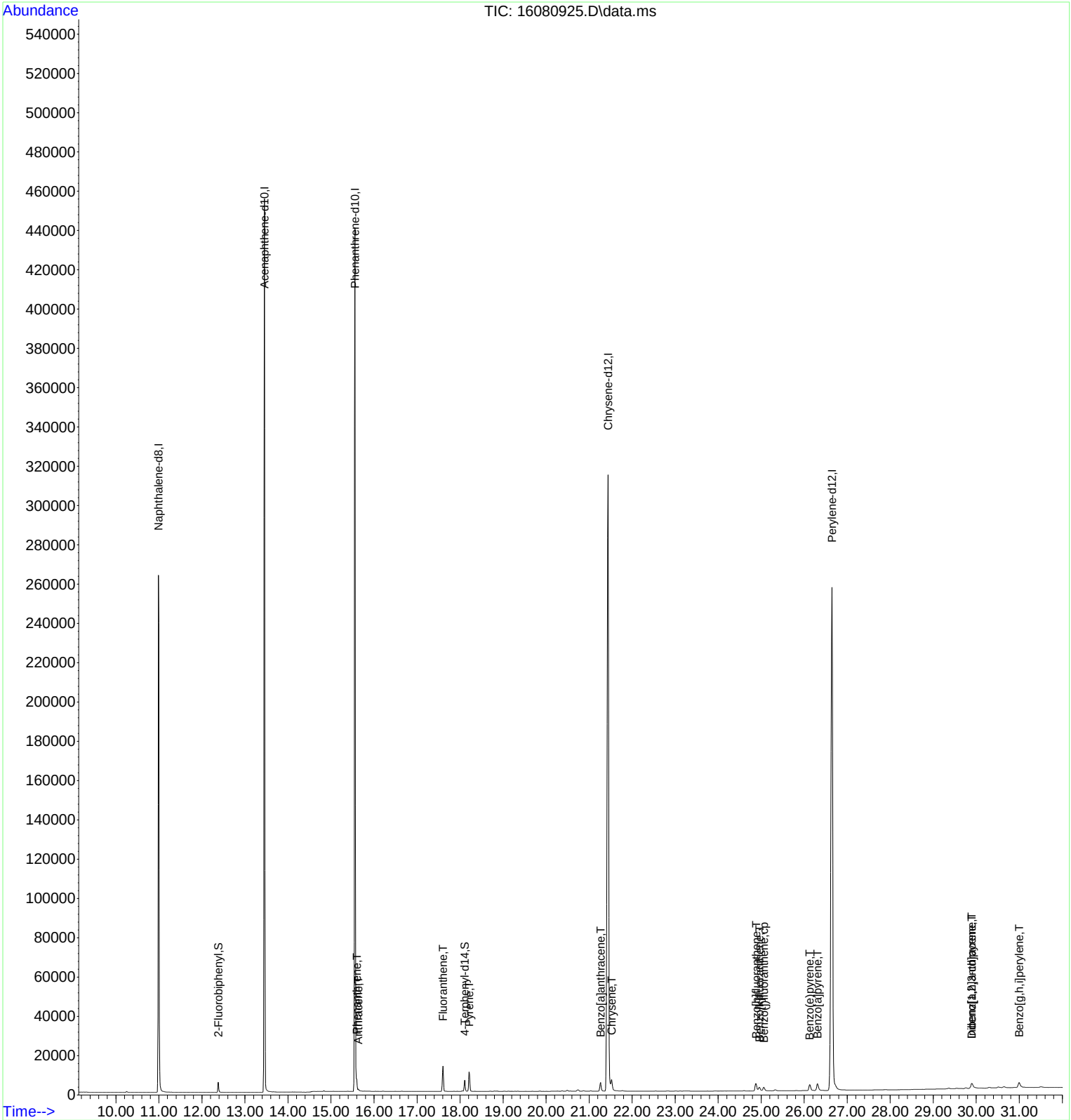
Target Compounds						Qvalue
12) Phenanthrene	15.597	178	5724	40.42	ug/kg	99
13) Anthracene	15.636	178	717	5.35	ug/kg	99
14) Fluoranthene	17.602	202	13715	98.38	ug/kg	93
16) Pyrene	18.210	202	11760	84.37	ug/kg	98
18) Benzo[a]anthracene	21.266	228	6503	52.72	ug/kg	99
19) Chrysene	21.526	228	7817	66.95	ug/kg	99
21) Benzo[b]fluoranthene	24.881	252	7572	61.66	ug/kg	99
22) Benzo[k]fluoranthene	24.958	252	3190	31.18	ug/kg	95
23) Benzo(j)fluoranthene	25.064	252	3204	32.28	ug/kg	90
24) Benzo(e)pyrene	26.134	252	6035	49.38	ug/kg	96
25) Benzo[a]pyrene	26.308	252	7411	64.49	ug/kg	98
26) Indeno[1,2,3-cd]pyrene	29.904	276	5969	41.87	ug/kg	88
27) Dibenz[a,h]anthracene	29.884	278	1092	9.55	ug/kg	93
28) Benzo[g,h,i]perylene	30.993	276	6449	50.96	ug/kg	97

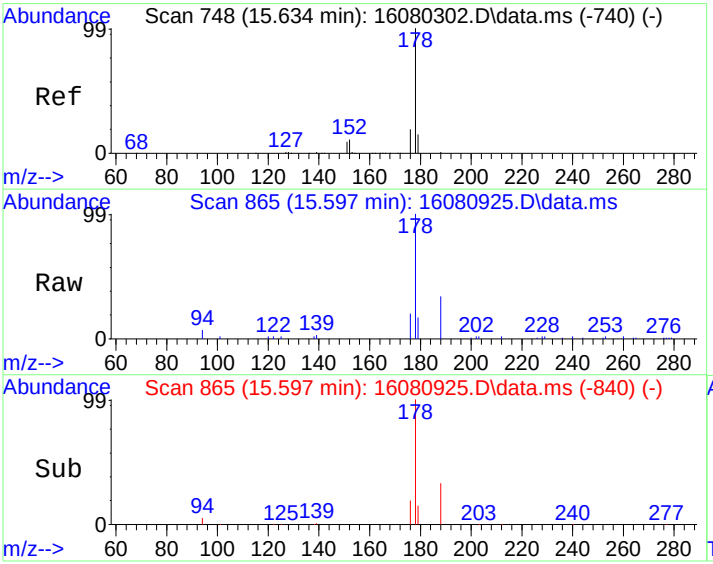
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160809\
Data File : 16080925.D
Acq On : 10 Aug 2016 12:24 am
Operator :
Sample : 1607337-05A
Misc : SAMP
ALS Vial : 25 Sample Multiplier: 10

Quant Time: Aug 10 08:01:54 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration

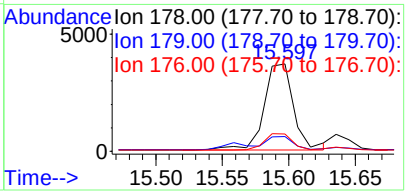


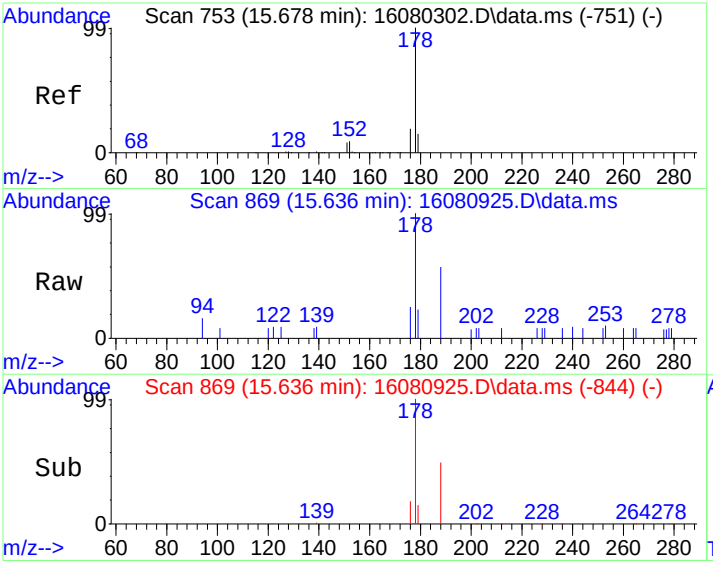


#12
Phenanthrene
Concen: 40.42 ug/kg
RT: 15.597 min Scan# 865
Delta R.T. -0.009 min
Lab File: 16080925.D
Acq: 10 Aug 2016 12:24 am

Tgt Ion:178 Resp: 5724

Ion	Ratio	Lower	Upper
178	100		
179	15.5	0.0	35.7
176	18.5	0.0	38.8

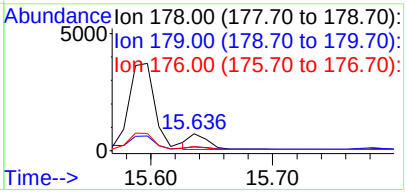


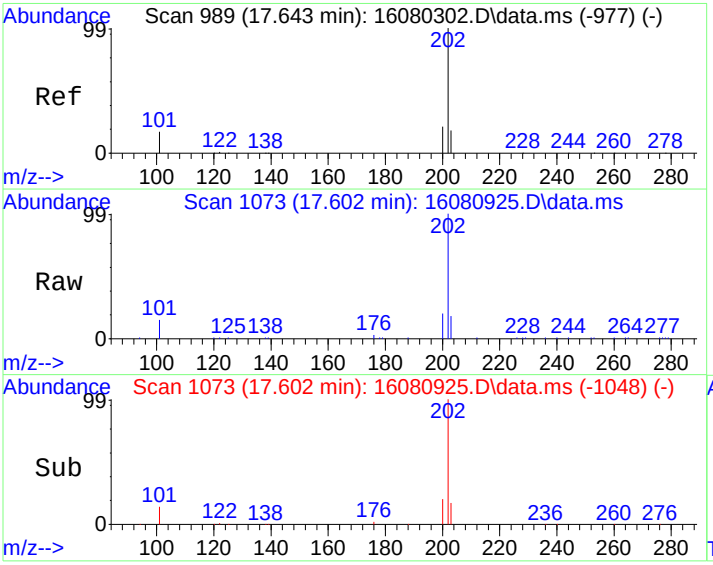


#13
Anthracene
Concen: 5.35 ug/kg
RT: 15.636 min Scan# 869
Delta R.T. -0.009 min
Lab File: 16080925.D
Acq: 10 Aug 2016 12:24 am

Tgt Ion:178 Resp: 717

Ion	Ratio	Lower	Upper
178	100		
179	14.8	0.0	35.5
176	18.6	0.0	38.7

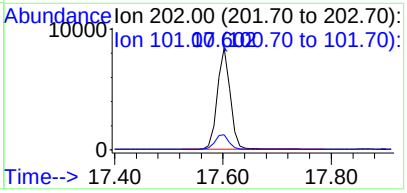


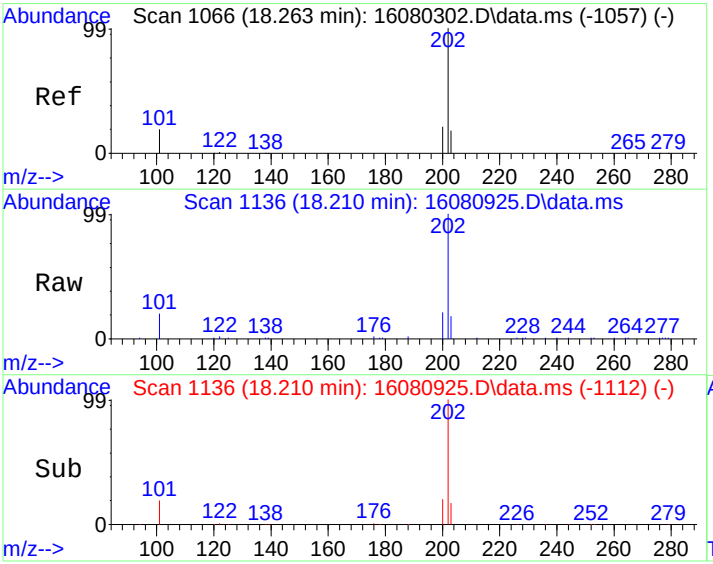


#14
Fluoranthene
Concen: 98.38 ug/kg
RT: 17.602 min Scan# 1073
Delta R.T. -0.009 min
Lab File: 16080925.D
Acq: 10 Aug 2016 12:24 am

Tgt Ion:202 Resp: 13715

Ion	Ratio	Lower	Upper
202	100		
101	14.2	0.0	37.2

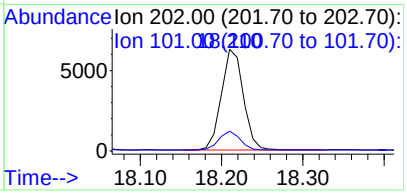


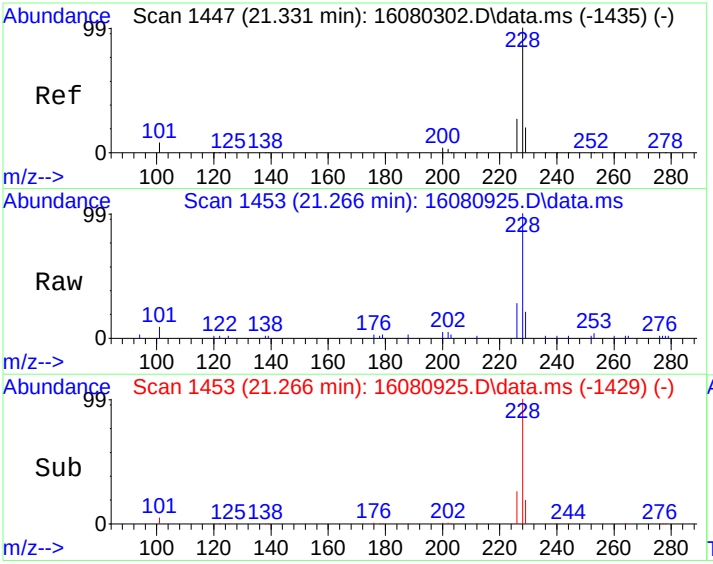


#16
Pyrene
Concen: 84.37 ug/kg
RT: 18.210 min Scan# 1136
Delta R.T. -0.019 min
Lab File: 16080925.D
Acq: 10 Aug 2016 12:24 am

Tgt Ion:202 Resp: 11760

Ion	Ratio	Lower	Upper
202	100		
101	18.8	0.0	38.0

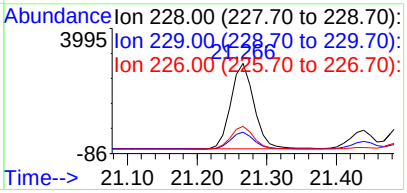


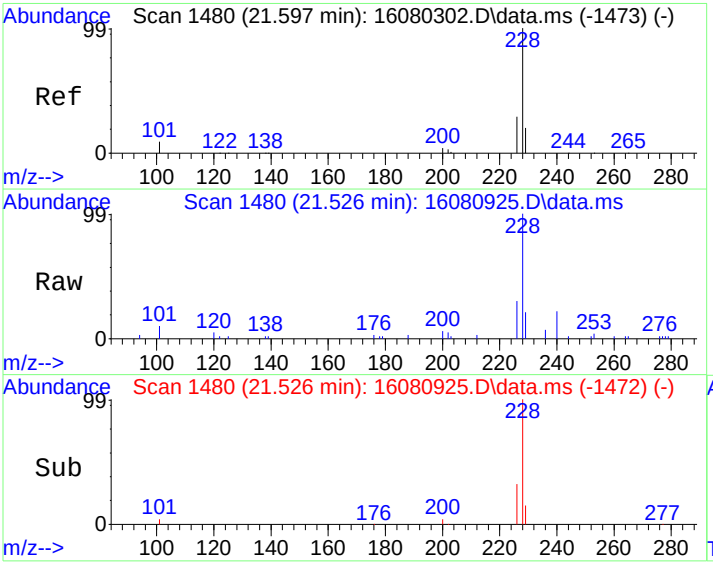


#18
Benzo[a]anthracene
Concen: 52.72 ug/kg
RT: 21.266 min Scan# 1453
Delta R.T. -0.019 min
Lab File: 16080925.D
Acq: 10 Aug 2016 12:24 am

Tgt Ion:228 Resp: 6503

Ion	Ratio	Lower	Upper
228	100		
229	19.4	0.0	39.9
226	26.5	6.7	46.7

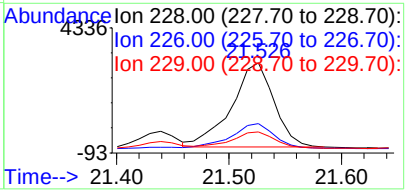


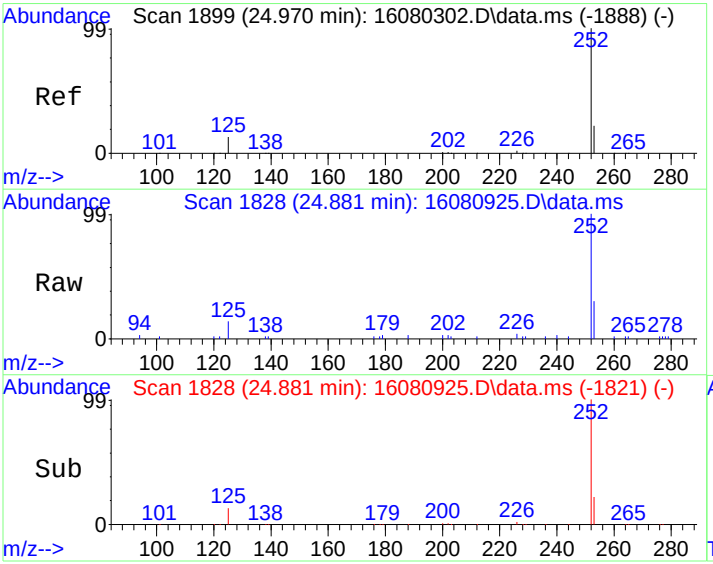


#19
Chrysene
Concen: 66.95 ug/kg
RT: 21.526 min Scan# 1480
Delta R.T. -0.019 min
Lab File: 16080925.D
Acq: 10 Aug 2016 12:24 am

Tgt Ion:228 Resp: 7817

Ion	Ratio	Lower	Upper
228	100		
226	29.1	9.3	49.3
229	19.3	0.0	39.8

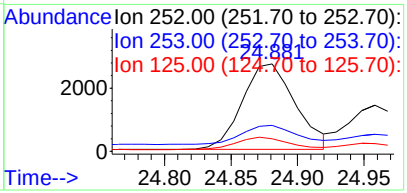


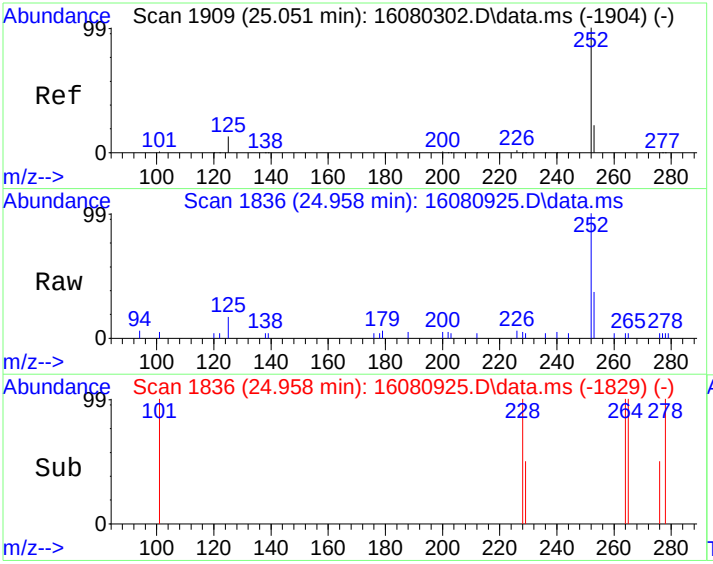


#21
Benzo[b]fluoranthene
Concen: 61.66 ug/kg
RT: 24.881 min Scan# 1828
Delta R.T. -0.029 min
Lab File: 16080925.D
Acq: 10 Aug 2016 12:24 am

Tgt Ion:252 Resp: 7572

Ion	Ratio	Lower	Upper
252	100		
253	22.3	1.9	41.9
125	12.5	0.0	33.2

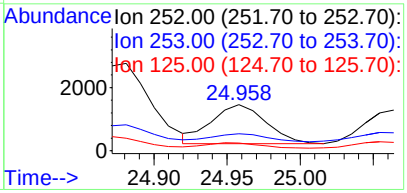


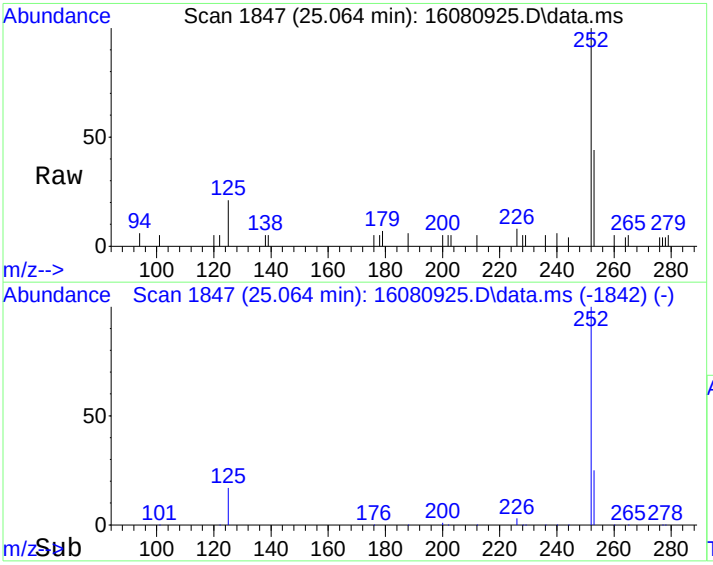


#22
Benzo[k]fluoranthene
Concen: 31.18 ug/kg
RT: 24.958 min Scan# 1836
Delta R.T. -0.029 min
Lab File: 16080925.D
Acq: 10 Aug 2016 12:24 am

Tgt Ion:252 Resp: 3190

Ion	Ratio	Lower	Upper
252	100		
253	19.2	2.1	42.1
125	12.5	0.0	33.9

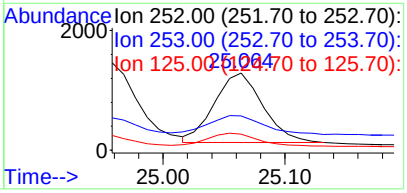


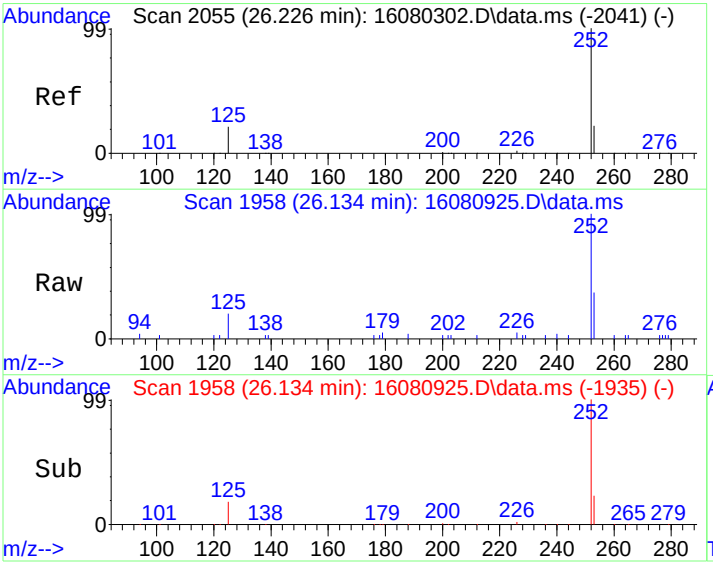


#23
Benzo(j)fluoranthene
Concen: 32.28 ug/kg
RT: 25.064 min Scan# 1847
Delta R.T. -0.029 min
Lab File: 16080925.D
Acq: 10 Aug 2016 12:24 am

Tgt Ion:252 Resp: 3204

Ion	Ratio	Lower	Upper
252	100		
253	30.5	1.9	41.9
125	19.0	0.0	39.4

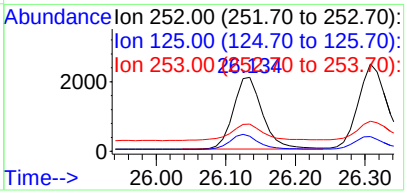


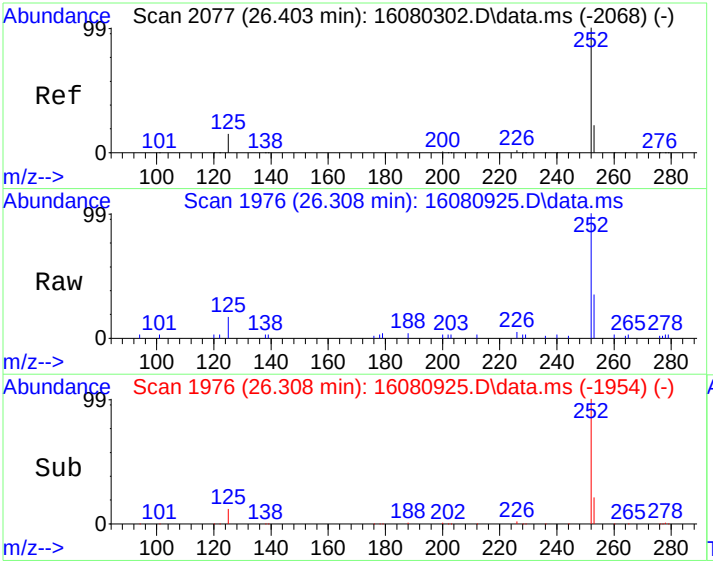


#24
Benzo(e)pyrene
Concen: 49.38 ug/kg
RT: 26.134 min Scan# 1958
Delta R.T. -0.029 min
Lab File: 16080925.D
Acq: 10 Aug 2016 12:24 am

Tgt Ion:252 Resp: 6035

Ion	Ratio	Lower	Upper
252	100		
125	20.5	0.5	40.5
253	26.1	2.1	42.1

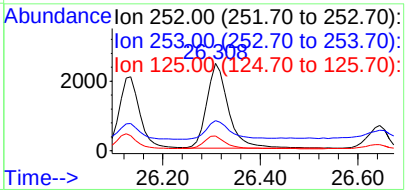


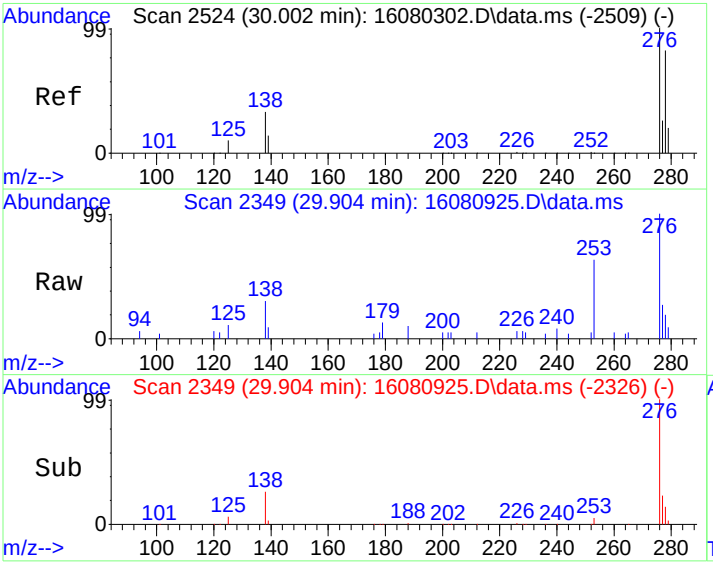


#25
Benzo[a]pyrene
Concen: 64.49 ug/kg
RT: 26.308 min Scan# 1976
Delta R.T. -0.038 min
Lab File: 16080925.D
Acq: 10 Aug 2016 12:24 am

Tgt Ion:252 Resp: 7411

Ion	Ratio	Lower	Upper
252	100		
253	22.1	1.9	41.9
125	15.0	0.0	33.5

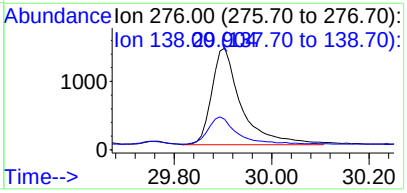


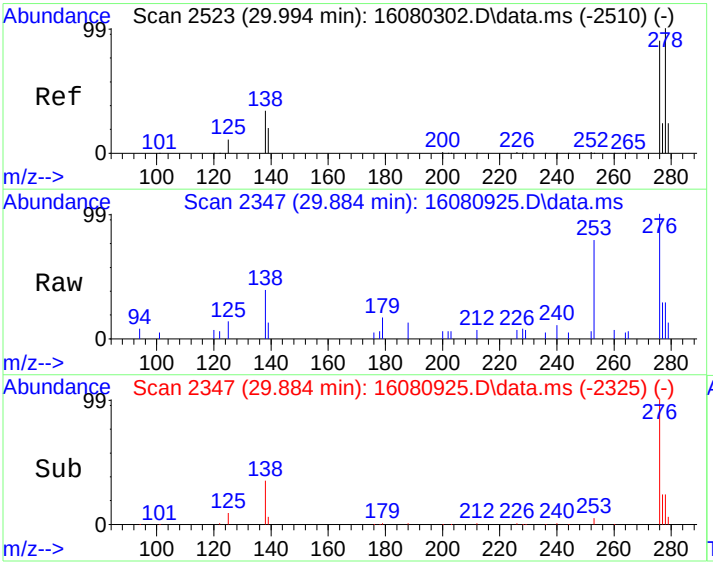


#26
Indeno[1,2,3-cd]pyrene
Concen: 41.87 ug/kg
RT: 29.904 min Scan# 2349
Delta R.T. -0.029 min
Lab File: 16080925.D
Acq: 10 Aug 2016 12:24 am

Tgt Ion:276 Resp: 5969

Ion	Ratio	Lower	Upper
276	100		
138	25.4	12.2	52.2

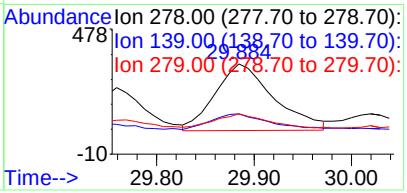


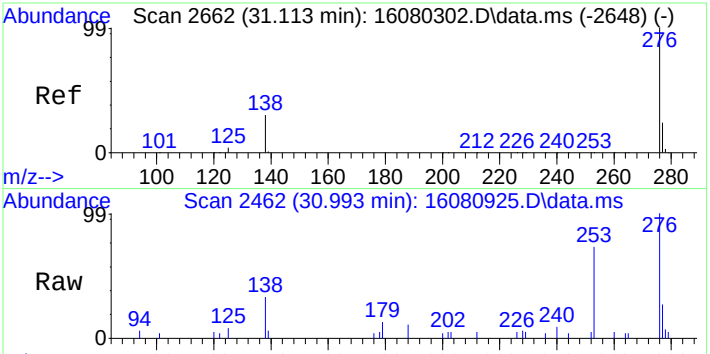


#27
Dibenz[a,h]anthracene
Concen: 9.55 ug/kg
RT: 29.884 min Scan# 2347
Delta R.T. -0.038 min
Lab File: 16080925.D
Acq: 10 Aug 2016 12:24 am

Tgt Ion:278 Resp: 1092

Ion	Ratio	Lower	Upper
278	100		
139	25.5	0.2	40.2
279	22.2	3.9	43.9

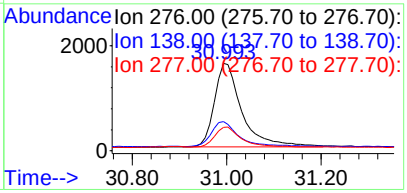




#28
Benzo[g,h,i]perylene
Concen: 50.96 ug/kg
RT: 30.993 min Scan# 2462
Delta R.T. -0.048 min
Lab File: 16080925.D
Acq: 10 Aug 2016 12:24 am

Tgt Ion:276 Resp: 6449

Ion	Ratio	Lower	Upper
276	100		
138	29.8	6.9	46.9
277	23.6	3.9	43.9



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160809\
Data File : 16080926.D
Acq On : 10 Aug 2016 1:04 am
Operator :
Sample : 1607337-06A
Misc : SAMP
ALS Vial : 26 Sample Multiplier: 10

Quant Time: Aug 10 08:02:03 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	10.994	136	335148	4000.00	ug/kg	127
6) Acenaphthene-d10	13.455	164	238981	4000.00	ug/kg	147
11) Phenanthrene-d10	15.557	188	514309	4000.00	ug/kg	100
17) Chrysene-d12	21.438	240	472700	4000.00	ug/kg	102
20) Perylene-d12	26.643	264	466926	4000.00	ug/kg	111

System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.377	172	5769	77.38	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 1.93%#			
15) 4-Terphenyl-d14	18.112	244	6673	73.80	ug/kg	-0.01
Spiked Amount 4000.000	Range 50 - 135		Recovery = 1.84%#			

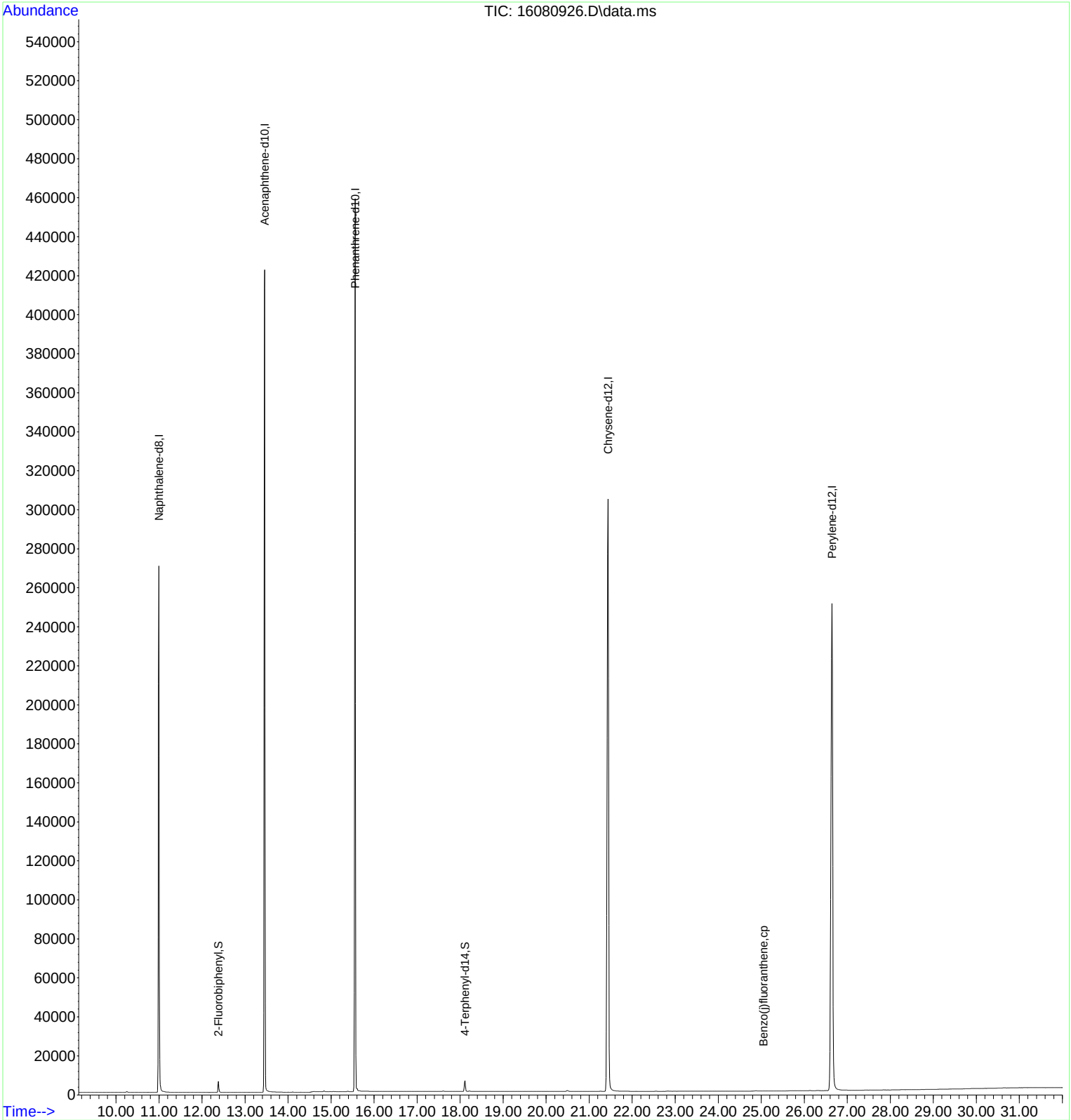
Target Compounds						Qvalue
23) Benzo(j)fluoranthene	25.062	252	86	0.90	ug/kg#	72

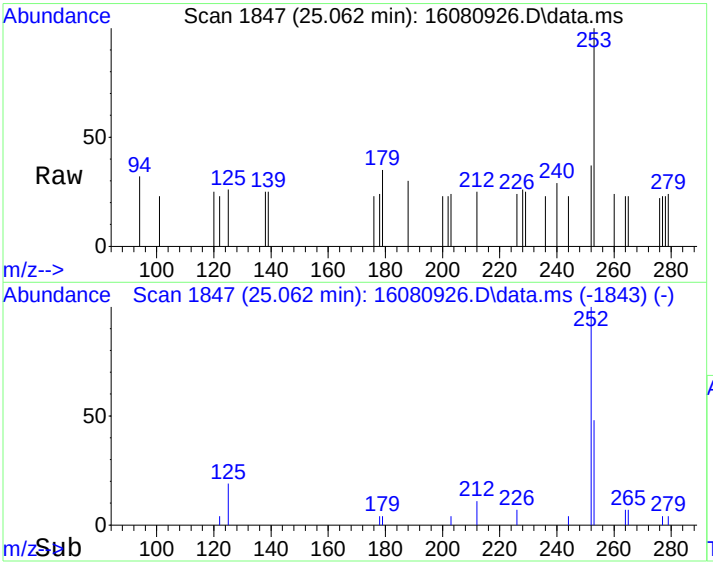
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160809\
Data File : 16080926.D
Acq On : 10 Aug 2016 1:04 am
Operator :
Sample : 1607337-06A
Misc : SAMP
ALS Vial : 26 Sample Multiplier: 10

Quant Time: Aug 10 08:02:03 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration

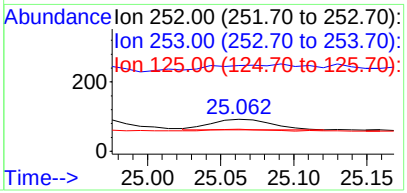




#23
Benzo(j)fluoranthene
Concen: 0.90 ug/kg
RT: 25.062 min Scan# 1847
Delta R.T. -0.030 min
Lab File: 16080926.D
Acq: 10 Aug 2016 1:04 am

Tgt Ion:252 Resp: 86

Ion	Ratio	Lower	Upper
252	100		
253	0.0	1.9	41.9#
125	16.3	0.0	39.4



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160809\
Data File : 16080927.D
Acq On : 10 Aug 2016 1:43 am
Operator :
Sample : 1607337-07A
Misc : SAMP
ALS Vial : 27 Sample Multiplier: 10

Quant Time: Aug 10 08:02:07 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	10.993	136	315672	4000.00	ug/kg	119
6) Acenaphthene-d10	13.454	164	231124	4000.00	ug/kg	143
11) Phenanthrene-d10	15.558	188	486943	4000.00	ug/kg	95
17) Chrysene-d12	21.429	240	446070	4000.00	ug/kg	96
20) Perylene-d12	26.645	264	446375	4000.00	ug/kg	106

System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.376	172	5961	84.88	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 2.12%#			
15) 4-Terphenyl-d14	18.104	244	6764	79.01	ug/kg	-0.02
Spiked Amount 4000.000	Range 50 - 135		Recovery = 1.98%#			

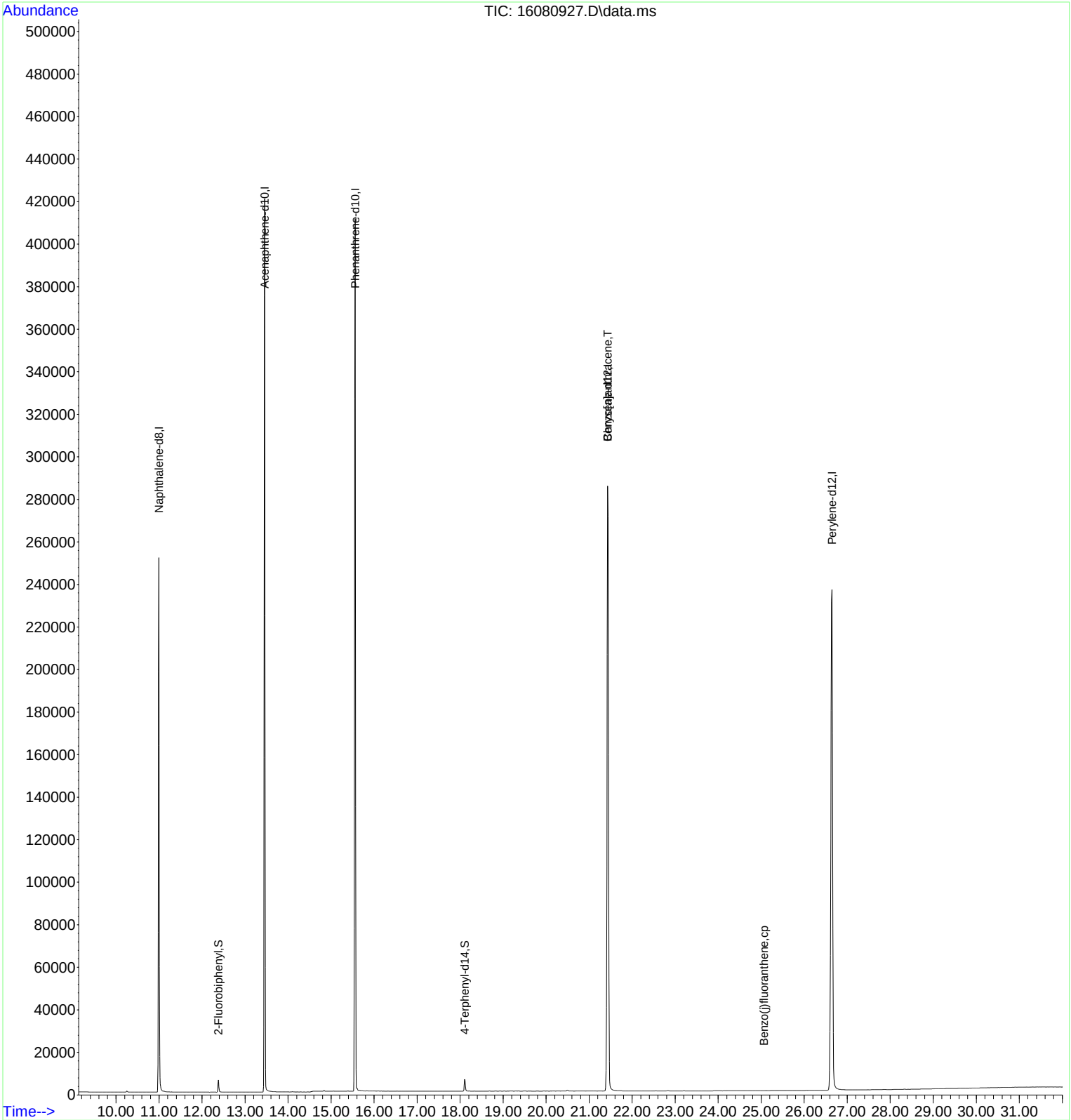
Target Compounds						Qvalue
18) Benzo[a]anthracene	21.429	228	1207	10.74	ug/kg	72
23) Benzo(j)fluoranthene	25.064	252	9	0.10	ug/kg#	1

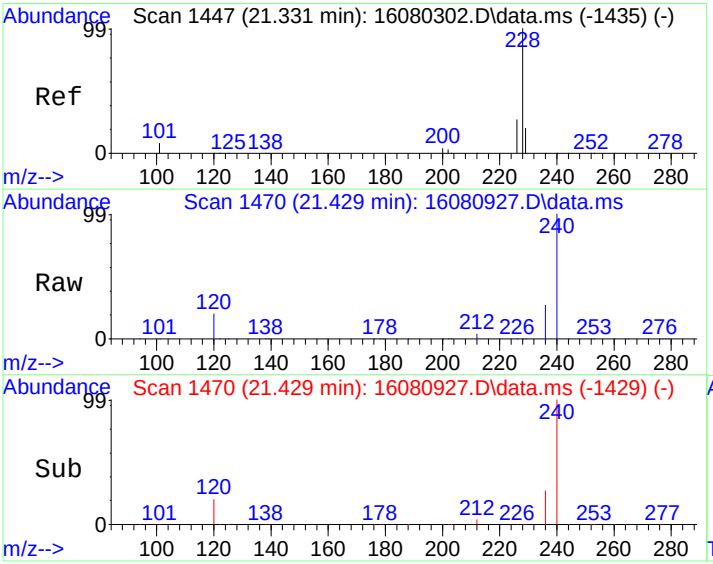
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160809\
Data File : 16080927.D
Acq On : 10 Aug 2016 1:43 am
Operator :
Sample : 1607337-07A
Misc : SAMP
ALS Vial : 27 Sample Multiplier: 10

Quant Time: Aug 10 08:02:07 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration

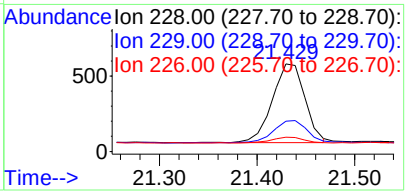


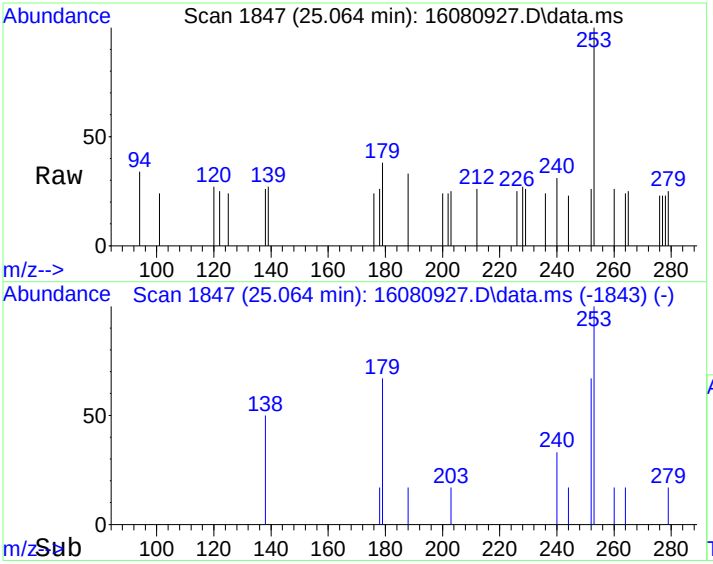


#18
Benzo[a]anthracene
Concen: 10.74 ug/kg
RT: 21.429 min Scan# 1470
Delta R.T. 0.145 min
Lab File: 16080927.D
Acq: 10 Aug 2016 1:43 am

Tgt Ion:228 Resp: 1207

Ion	Ratio	Lower	Upper
228	100		
229	27.4	0.0	39.9
226	7.5	6.7	46.7

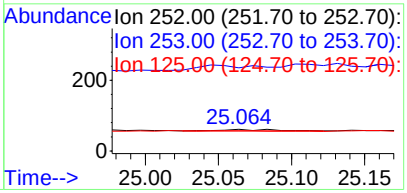




#23
Benzo(j)fluoranthene
Concen: 0.10 ug/kg
RT: 25.064 min Scan# 1847
Delta R.T. -0.029 min
Lab File: 16080927.D
Acq: 10 Aug 2016 1:43 am

Tgt Ion:252 Resp: 9

Ion	Ratio	Lower	Upper
252	100		
253	400.0	1.9	41.9#
125	77.8	0.0	39.4#



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160809\
Data File : 16080928.D
Acq On : 10 Aug 2016 2:23 am
Operator :
Sample : 1607337-08A
Misc : SAMP
ALS Vial : 28 Sample Multiplier: 10

Quant Time: Aug 10 08:02:10 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	10.989	136	315222	4000.00	ug/kg	119
6) Acenaphthene-d10	13.450	164	233411	4000.00	ug/kg	144
11) Phenanthrene-d10	15.558	188	487749	4000.00	ug/kg	95
17) Chrysene-d12	21.438	240	444528	4000.00	ug/kg	96
20) Perylene-d12	26.644	264	439509	4000.00	ug/kg	105

System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.379	172	5855	83.49	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery =	2.09%#		
15) 4-Terphenyl-d14	18.112	244	6468	75.43	ug/kg	-0.01
Spiked Amount 4000.000	Range 50 - 135		Recovery =	1.89%#		

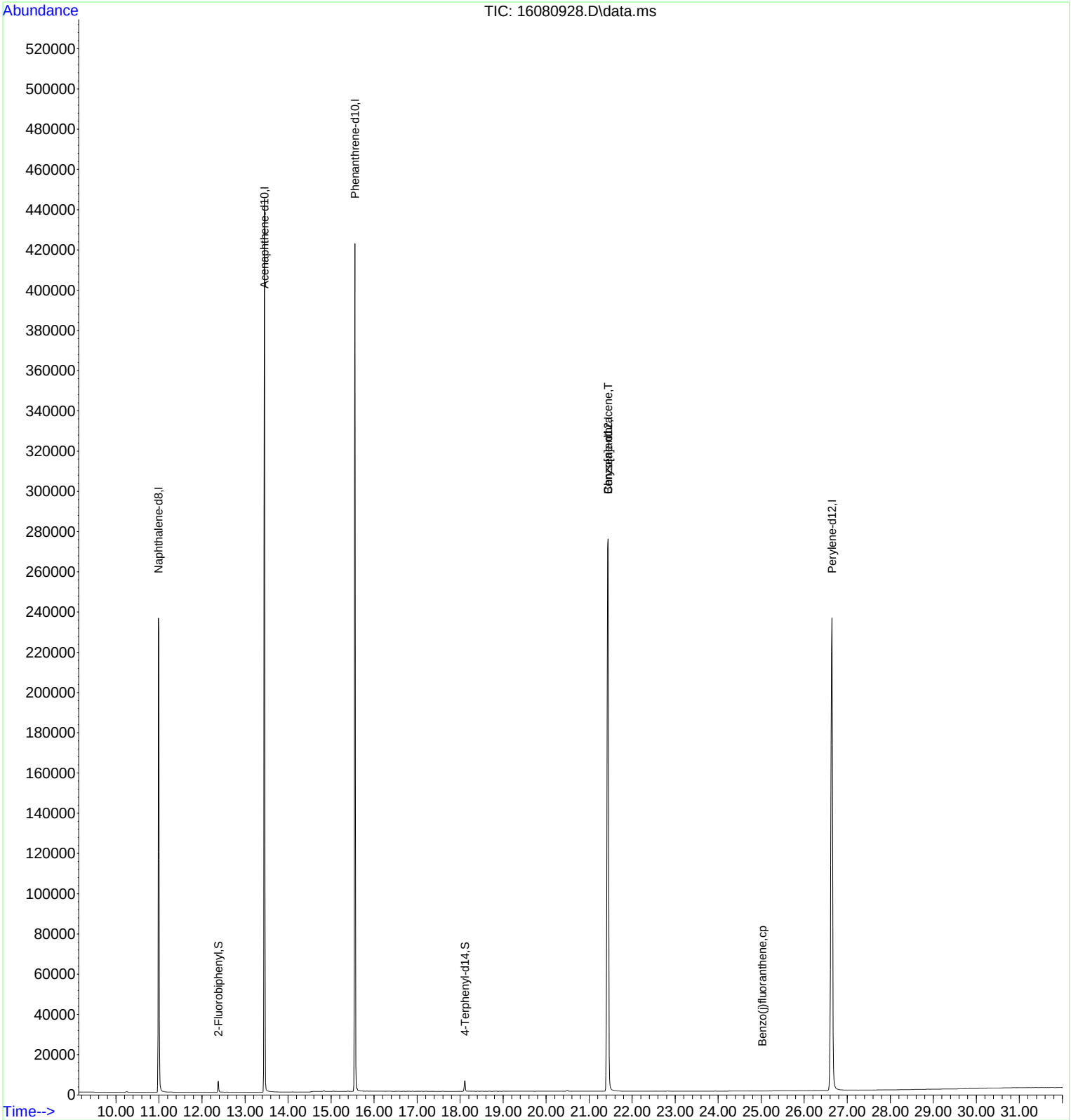
Target Compounds						Qvalue
18) Benzo[a]anthracene	21.438	228	1211	10.82	ug/kg	70
23) Benzo(j)fluoranthene	25.015	252	9	0.10	ug/kg#	1

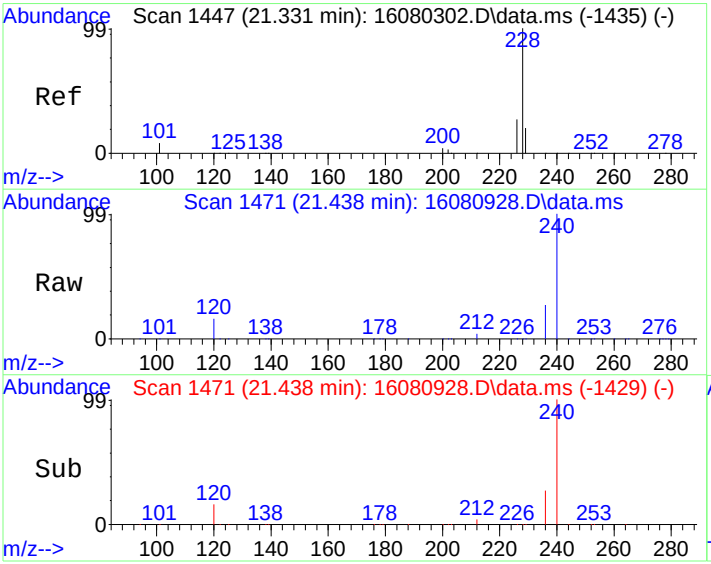
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160809\
Data File : 16080928.D
Acq On : 10 Aug 2016 2:23 am
Operator :
Sample : 1607337-08A
Misc : SAMP
ALS Vial : 28 Sample Multiplier: 10

Quant Time: Aug 10 08:02:10 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration

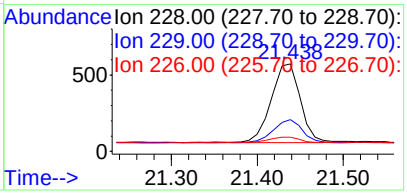


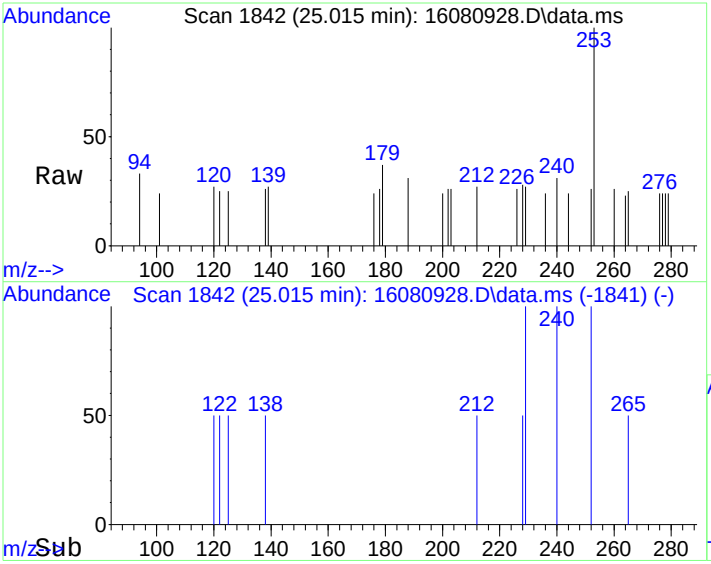


#18
Benzo[a]anthracene
Concen: 10.82 ug/kg
RT: 21.438 min Scan# 1471
Delta R.T. 0.154 min
Lab File: 16080928.D
Acq: 10 Aug 2016 2:23 am

Tgt Ion:228 Resp: 1211

Ion	Ratio	Lower	Upper
228	100		
229	29.1	0.0	39.9
226	7.2	6.7	46.7

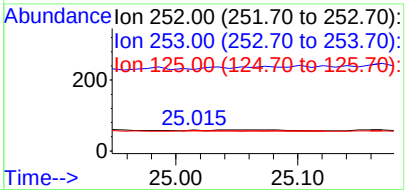




#23
Benzo(j)fluoranthene
Concen: 0.10 ug/kg
RT: 25.015 min Scan# 1842
Delta R.T. -0.078 min
Lab File: 16080928.D
Acq: 10 Aug 2016 2:23 am

Tgt Ion:252 Resp: 9

Ion	Ratio	Lower	Upper
252	100		
253	100.0	1.9	41.9#
125	33.3	0.0	39.4



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160809\
Data File : 16080929.D
Acq On : 10 Aug 2016 3:02 am
Operator :
Sample : 1607317-27AMS
Misc : MS
ALS Vial : 29 Sample Multiplier: 10

Quant Time: Aug 10 08:00:11 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration

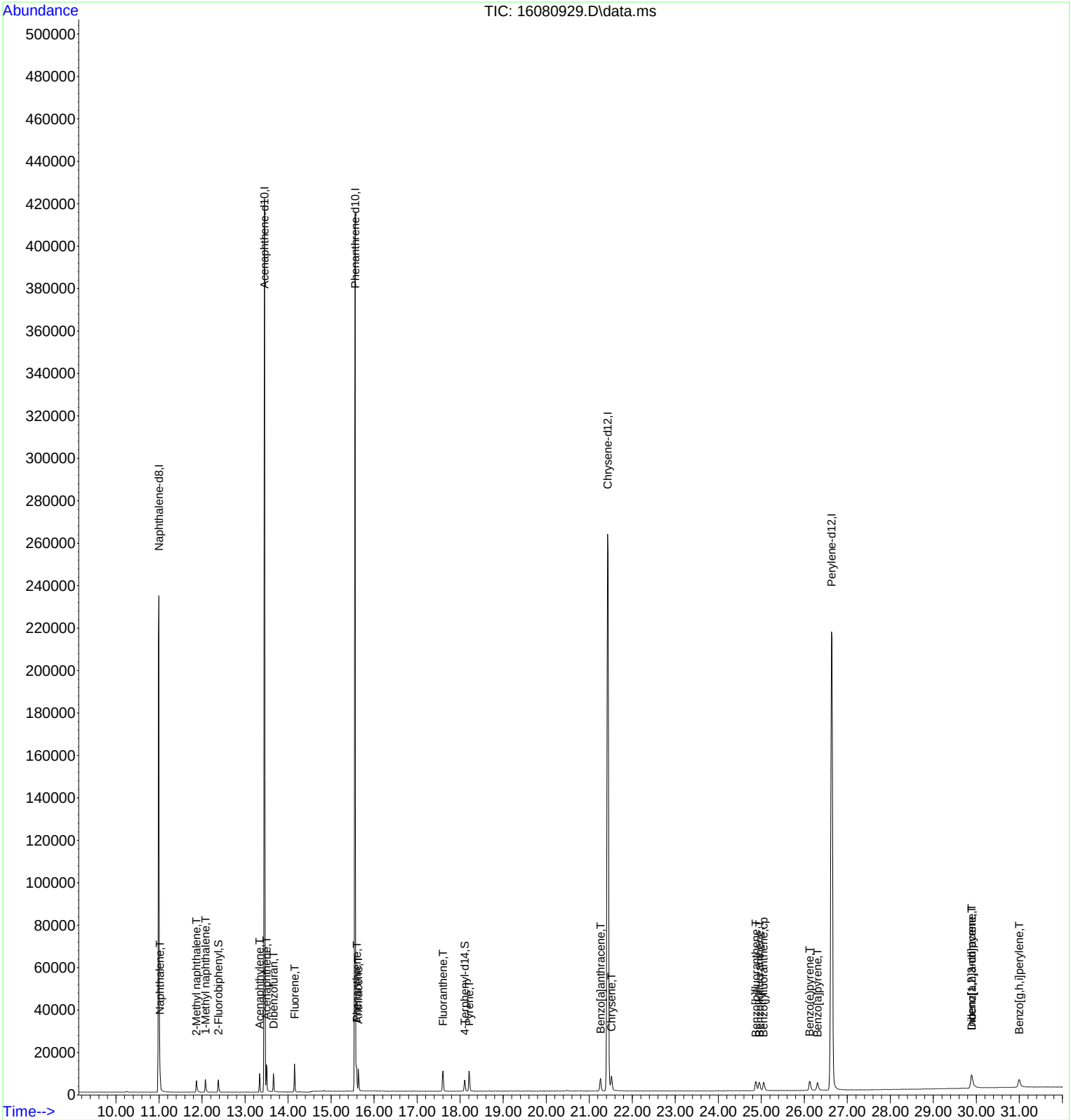
Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	10.995	136	304379	4000.00	ug/kg	115
6) Acenaphthene-d10	13.449	164	226569	4000.00	ug/kg	140
11) Phenanthrene-d10	15.557	188	471318	4000.00	ug/kg	92
17) Chrysene-d12	21.429	240	425303	4000.00	ug/kg	92
20) Perylene-d12	26.634	264	418898	4000.00	ug/kg	100
System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.378	172	6011	88.77	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 2.22%#			
15) 4-Terphenyl-d14	18.103	244	6449	77.83	ug/kg	-0.02
Spiked Amount 4000.000	Range 50 - 135		Recovery = 1.95%#			
Target Compounds						Qvalue
2) Naphthalene	11.023	128	5630	77.54	ug/kg	100
3) 2-Methyl naphthalene	11.874	142	4355	87.99	ug/kg	97
4) 1-Methyl naphthalene	12.080	142	4108	90.29	ug/kg	99
7) Acenaphthylene	13.335	152	8646	82.48	ug/kg	99
8) Acenaphthene	13.498	153	5530	80.73	ug/kg	97
9) Dibenzofuran	13.662	168	8404	71.48	ug/kg	98
10) Fluorene	14.151	166	6967	68.52	ug/kg	100
12) Phenanthrene	15.596	178	10803	85.67	ug/kg	99
13) Anthracene	15.635	178	9336	75.89	ug/kg	99
14) Fluoranthene	17.601	202	10606	82.90	ug/kg	92
16) Pyrene	18.209	202	10604	82.91	ug/kg	99
18) Benzo[a]anthracene	21.265	228	8720	81.41	ug/kg	99
19) Chrysene	21.525	228	8372	82.58	ug/kg	98
21) Benzo[b]fluoranthene	24.880	252	8672	81.65	ug/kg	99
22) Benzo[k]fluoranthene	24.957	252	6611	74.72	ug/kg	97
23) Benzo(j)fluoranthene	25.053	252	6869	80.02	ug/kg	99
24) Benzo(e)pyrene	26.133	252	8837	83.61	ug/kg	98
25) Benzo[a]pyrene	26.307	252	8018	80.67	ug/kg	98
26) Indeno[1,2,3-cd]pyrene	29.893	276	9958	80.77	ug/kg	99
27) Dibenz[a,h]anthracene	29.883	278	7341	74.25	ug/kg	97
28) Benzo[g,h,i]perylene	30.992	276	9098	83.12	ug/kg	96

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160809\
Data File : 16080929.D
Acq On : 10 Aug 2016 3:02 am
Operator :
Sample : 1607317-27AMS
Misc : MS
ALS Vial : 29 Sample Multiplier: 10

Quant Time: Aug 10 08:00:11 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160809\
Data File : 16080930.D
Acq On : 10 Aug 2016 3:42 am
Operator :
Sample : 1607317-27AMSD
Misc : MSD
ALS Vial : 30 Sample Multiplier: 10

Quant Time: Aug 10 08:00:14 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration

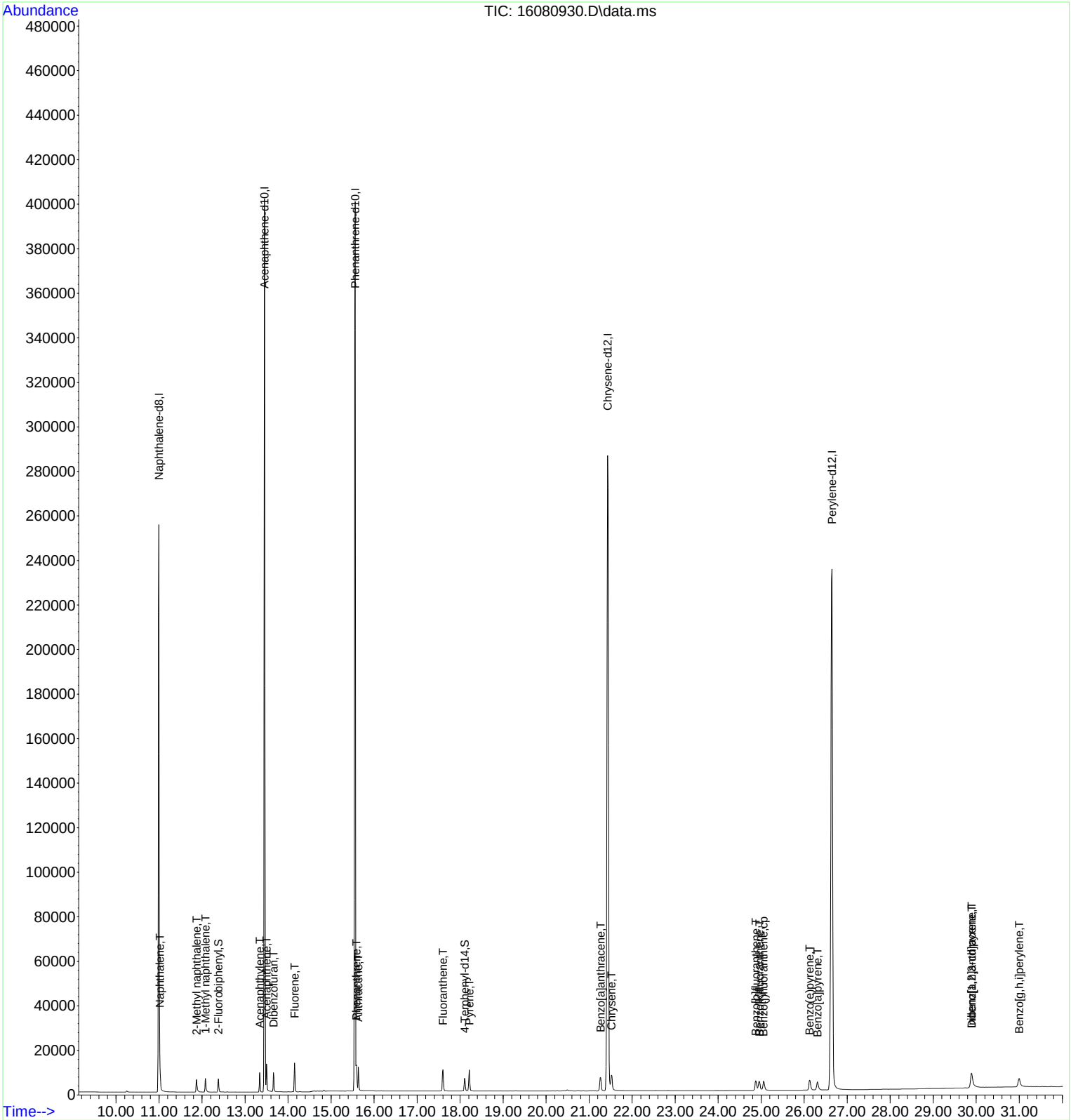
Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	10.994	136	322666	4000.00	ug/kg	122
6) Acenaphthene-d10	13.448	164	227336	4000.00	ug/kg	140
11) Phenanthrene-d10	15.558	188	486204	4000.00	ug/kg	94
17) Chrysene-d12	21.429	240	450460	4000.00	ug/kg	97
20) Perylene-d12	26.645	264	440457	4000.00	ug/kg	105
System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.377	172	5841	81.37	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 2.03%#			
15) 4-Terphenyl-d14	18.103	244	6720	78.62	ug/kg	-0.02
Spiked Amount 4000.000	Range 50 - 135		Recovery = 1.97%#			
Target Compounds						Qvalue
2) Naphthalene	11.022	128	5836	75.82	ug/kg	99
3) 2-Methyl naphthalene	11.873	142	4438	84.59	ug/kg	97
4) 1-Methyl naphthalene	12.079	142	4160	86.25	ug/kg	99
7) Acenaphthylene	13.342	152	8574	81.52	ug/kg	99
8) Acenaphthene	13.498	153	5466	79.52	ug/kg	97
9) Dibenzofuran	13.661	168	8273	70.12	ug/kg	99
10) Fluorene	14.150	166	6886	67.50	ug/kg	100
12) Phenanthrene	15.587	178	11088	85.22	ug/kg	99
13) Anthracene	15.635	178	9475	74.66	ug/kg	98
14) Fluoranthene	17.602	202	10983	83.22	ug/kg	91
16) Pyrene	18.209	202	10863	82.33	ug/kg	98
18) Benzo[a]anthracene	21.265	228	9051	79.78	ug/kg	99
19) Chrysene	21.516	228	8542	79.55	ug/kg	100
21) Benzo[b]fluoranthene	24.871	252	8948	80.13	ug/kg	99
22) Benzo[k]fluoranthene	24.958	252	6672	71.72	ug/kg	98
23) Benzo(j)fluoranthene	25.054	252	7326	81.16	ug/kg	99
24) Benzo(e)pyrene	26.124	252	9034	81.29	ug/kg	98
25) Benzo[a]pyrene	26.307	252	8117	77.67	ug/kg	99
26) Indeno[1,2,3-cd]pyrene	29.894	276	10303	79.47	ug/kg	98
27) Dibenz[a,h]anthracene	29.884	278	7727	74.33	ug/kg	99
28) Benzo[g,h,i]perylene	30.993	276	9357	81.31	ug/kg	97

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160809\
Data File : 16080930.D
Acq On : 10 Aug 2016 3:42 am
Operator :
Sample : 1607317-27AMSD
Misc : MSD
ALS Vial : 30 Sample Multiplier: 10

Quant Time: Aug 10 08:00:14 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160809\
Data File : 16080931.D
Acq On : 10 Aug 2016 4:21 am
Operator :
Sample : CCV1-160809
Misc : CCV
ALS Vial : 31 Sample Multiplier: 1

Quant Time: Aug 10 08:00:17 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	10.995	136	339144	4000.00	ug/kg	128
6) Acenaphthene-d10	13.449	164	250199	4000.00	ug/kg	154
11) Phenanthrene-d10	15.559	188	531226	4000.00	ug/kg	103
17) Chrysene-d12	21.439	240	473327	4000.00	ug/kg	102
20) Perylene-d12	26.645	264	468435	4000.00	ug/kg	111

System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.371	172	76297	1011.27	ug/kg	-0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery = 25.28%#			
15) 4-Terphenyl-d14	18.104	244	86485	926.03	ug/kg	-0.02
Spiked Amount 4000.000	Range 50 - 135		Recovery = 23.15%#			

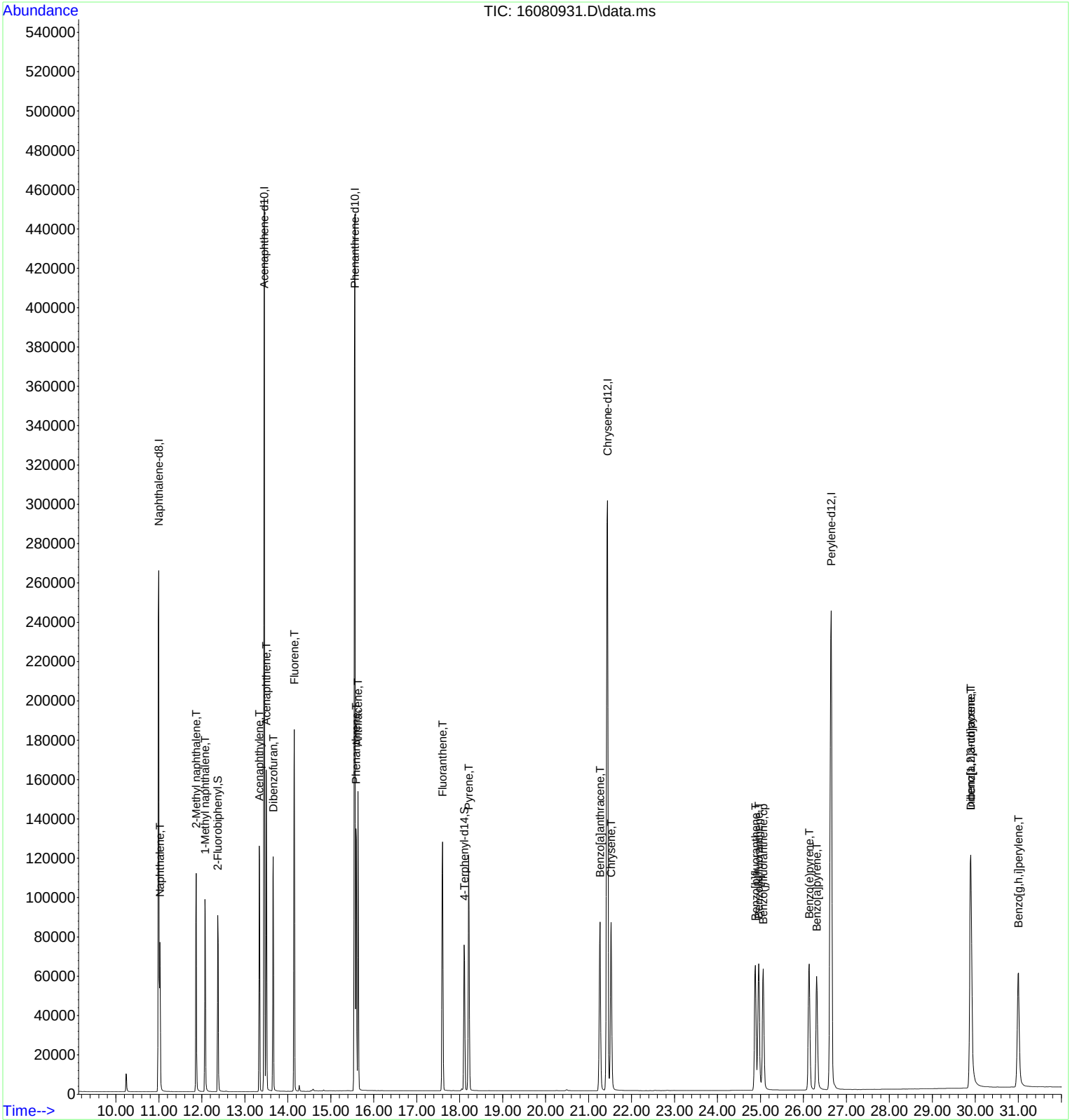
Target Compounds						Qvalue
2) Naphthalene	11.023	128	78796	974.01	ug/kg	100
3) 2-Methyl naphthalene	11.867	142	61430	1113.99	ug/kg	98
4) 1-Methyl naphthalene	12.073	142	57152	1127.36	ug/kg	96
7) Acenaphthylene	13.335	152	120345	1039.66	ug/kg	99
8) Acenaphthene	13.498	153	75782	1001.77	ug/kg	97
9) Dibenzofuran	13.662	168	112954	869.94	ug/kg	88
10) Fluorene	14.151	166	95884	853.99	ug/kg	100
12) Phenanthrene	15.588	178	139859	1020.44	ug/kg	99
13) Anthracene	15.636	178	133466	962.51	ug/kg	99
14) Fluoranthene	17.603	202	135290	938.27	ug/kg	92
16) Pyrene	18.210	202	135147	937.46	ug/kg	99
18) Benzo[a]anthracene	21.266	228	119071	998.83	ug/kg	99
19) Chrysene	21.526	228	113651	1007.28	ug/kg	99
21) Benzo[b]fluoranthene	24.881	252	119444	1005.69	ug/kg	99
22) Benzo[k]fluoranthene	24.958	252	105341	1064.73	ug/kg	99
23) Benzo(j)fluoranthene	25.064	252	103607	1079.29	ug/kg	99
24) Benzo(e)pyrene	26.134	252	117253	992.08	ug/kg	100
25) Benzo[a]pyrene	26.308	252	112887	1015.69	ug/kg	98
26) Indeno[1,2,3-cd]pyrene	29.904	276	144007	1044.48	ug/kg	93
27) Dibenz[a,h]anthracene	29.885	278	117199	1060.09	ug/kg	98
28) Benzo[g,h,i]perylene	31.003	276	123493	1008.98	ug/kg	99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160809\
Data File : 16080931.D
Acq On : 10 Aug 2016 4:21 am
Operator :
Sample : CCV1-160809
Misc : CCV
ALS Vial : 31 Sample Multiplier: 1

Quant Time: Aug 10 08:00:17 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration



GCMS8_160810A
For

DHL Work Order
1607337

Lab Data Review Check List
EPA Method 8270 / 625 - PAH: Polynuclear Aromatic Hydrocarbons

SEE RUN LOG FOR ALL PROJECT AND BATCH NUMBERS AND MATRICES	Run ID: GCMS8_160810A
Batch Number(s): See Run Log. Matrix: See Run Log.	SOP: ORGANICS-PAH-01

Review Item	Yes	No	N/A	2nd Level Review
Data Folder Contents 1. Is the Prep Batch Report included? Check and record the following: ***Prep Start/End Dates, Sample Amounts, Bottle #s***	X			x
2. Are the reagents and spikes listed on the Prep Batch Report current with a valid expiration date? ***All standard/QC sample preparations shall be documented in LIMS***	X			
3. Is the Run Log and instrument sequence included? ***Check the Test Code, Sample Type, Batch ID, and Analysis Date/Time***	X			
4. Is the System Verification - Tune Report included? ***Date/Tme of Tune starts 12-hour analysis window***	X			
5. Is the Evaluate Continuing Calibration Report included?	X			

Daily Demonstration of Performance

QC items that do not meet method/SOP/project requirements will be described on the run log. All variances that impact data quality will be described in the Variance/Comment Section on page 2.

Review Item	Frequency	Limits	Pass	Fail (List Batch/Sample) **See Run Log**	2nd Level Review
Tune	Before ICAL Every 12 hours	See Tune Eval Report	X		x
Resolution Check - Benzo(b) and Benzo(k)phenanthrene	Before ICAL Every 12 hours	Benzo(b) and Benzo(k) Valley > 50%	X		
Initial Calibration Curve (ICAL) (minimum: 5 Standards)	Prior to samples and when ICV fails	Avg. RF - %RSD ≤ 15% Curve (COD) - R^2 ≥ 0.990	X		
SSCV - (Second Source)	After calibration (ICAL)	80-120%	X		
ICV - (Daily Initial Cal Verification)	Every 12 hours	ISTDs Area% (50-200%) Surrogates %R (See LIMS) Analytes %R (80-120%)	X		

Review Item	Frequency	Limits	Pass	Fail	N/A	Review
Method Blank (MB) System Blank (SYS Blank)	Every Batch (MB) Daily (SYS BL)	< MDL / <½ RL (DoD) or <1/10 the sample/reg limit	X			x
Lab Control Sample (LCS)	Every Batch	See LIMS	X			
Lab Control Sample Dup (LCSD)	Insufficient sample Sample Matrix	See LIMS			X	
LCSD - RPD	Every LCS/LCSD	≤ 30 (Aq/Soil/DoD)			X	
Field Samples	Up to 20 per prep batch	ISTDs Area% (50-200%) Surrogates %R (See LIMS) RRT ± 0.06 RRT Standard Q value > 70 - check for #	X			
Matrix Spike (MS)	Every Batch/20 samples	See LIMS		X		
Matrix Spike Duplicate (MSD) (MSD is N/A for Method 625)	Every Prep Batch except Method 625	See LIMS		X		
MSD - RPD (MSD is N/A for Method 625)	Every MS/MSD except Method 625	≤ 30 (Aq/Soil/DoD)	X			

Lab Data Review Check List
EPA Method 8270 / 625 - PAH: Polynuclear Aromatic Hydrocarbons

Review Item	Criteria	Yes	No	N/A	2nd Level Review
Sample Analysis	7 days (Aq) - extraction			X	
1. Are all sample hold times met?	14 days (Soil) - extraction	X			
	40 days analysis	X			
2. Are all manual integrations signed (Before & After) and printouts included ? Put in LIMS Comment Section ***Include MI form for DoD work***	Before & After - signed Comment Section in LIMS MI Form - DoD only			X	x
3. Are all samples with concentrations > the highest standard used for calibration diluted and reanalyzed?	> highest standard			X	
Review Item #3 is N/A ONLY if all sample results are within Calibration range or NO if dilution is in different folder					
4. Is mass spectra reviewed/verified if Q value is <70 and/or # flag for results >MDL?	Q value <70 - All hits	X			x
5. Are ALL reported analytes > MDL (+ J flags) circled by the analyst?		X	**Return to analyst if NO**		
VARIANCE REPORT					
QC items that do not meet method/SOP/project requirements will be described on the run log. All variances that impact data quality will be described in this section.					
NON-CONFORMANCES / VARIANCE	All deviations from the method and SOP that affect data quality				
1. Are all non-conformances included and noted?				X	x
2. Are all corrective actions included?				X	
3. Does the variance require approval by the Technical Director/General Manager/QA Manager?				X	

Approved by: Date:

Description and Corrective Actions of QC items that do not meet method/SOP/project requirements:

****INCLUDE VARIANCE ITEM / REASON / CORRECTIVE ACTION / IMPACT ON DATA****

VARIANCE ITEM	REASON	CORRECTIVE ACTION
___ Hold Time exceeded (7D/14D-Ext/40D-Analysis)	___ Sample Received out of HT	___ Reanalyze QC to confirm
___ ICV out of control (±20%)	___ Carryover from previous run	___ Recalibrate
___ MB/SYS BL out of control (> MDL / >½ RL)	___ Cross contamination	___ Reprep/Reanalyze sample
___ LCS ___LCSD out of control (See LIMS)	___ Lab Artifact	___ Reprep/Reanalyze Batch
___ RPD out of control for LCS/LCSD (>30)	___ Prep Spike error (describe)	___ Reanalyze Batch/Sample/QC
___ MS ___ MSD out of control (See LIMS)	___ High Levels of target analytes	___ Verify H2O/reagents are clean
___ RPD out of control for MS/MSD (>30)	___ High Levels of non-targets	___ Reanalyze sample to confirm
___ Internal Standard(s) out of control	___ Insufficient sample for QC	___ Sample results ND w/ dilution
___ Multiple Surrogates out of control	___ Prep Error	___ Client notified and approved
___ No MS/MSD prepared - LCS/LCSD used instead	___ Analytical Error	___ Flag data / Case narrative
___ Missing QC (other than MS/MSD)	___ Client Request	___ Instrument Maintenance
___ QC sample(s) was mis-spiked	___ Other (describe below)	___ Accept data
___ Other (describe below)		___ Cannot reanalyze (HT out/Lack of Sample)

General Comments and Impact on Data: **See Run Log.**

Analyst: Don Winston Date: 8/11/2016

Second-Level Review: Janice Whitt Date: 8/18/2016

REVIEWED BY
By Janice Whitt at 3:17:16 PM, 8/18/2016

DHL Analytical, Inc.

Run ID: GCMS8_160810A **Run No.:** 87545

Analytical Run Date: 8/10/2016 **InstrumentID:** GCMS8

Analyst: Don Winston **Column:** Rtx-5Sil MS (30m x 0.25mm ID x 0.5µm df)

Calibration ID: 682 **Column ID:** 0.18mm

Column Length: 20m

Cal Comments: PAH160806.M

SampID	DF	TestCode	SampType	Batch ID	Analysis Date/Time	Q	Comments
DFTPP-160810	1	PAH_LL_SDOD1	TUNE	R87545	8/10/2016 6:35:00 AM		All samples in this batch run at 10x - detection limit is sufficient and is approved by project managers.
ICV-160810	1	PAH_LL_SDOD1	ICV	R87545	8/10/2016 7:14:00 AM		
LCS-76629	1	PAH_LL_SDOD1	LCS	76629	8/10/2016 7:55:00 AM		
MB-76629	1	PAH_LL_SDOD1	MBLK	76629	8/10/2016 8:35:00 AM		
1607337-09A	10	PAH_LL_SDOD1	SAMP	76629	8/10/2016 9:15:00 AM		
1607337-10A	10	PAH_LL_SDOD1	SAMP	76629	8/10/2016 9:55:00 AM		
1607337-11A	10	PAH_LL_SDOD1	SAMP	76629	8/10/2016 10:35:00 AM		
1607337-12A	10	PAH_LL_SDOD1	SAMP	76629	8/10/2016 11:14:00 AM		
1607337-14A	10	PAH_LL_SDOD1	SAMP	76629	8/10/2016 11:54:00 AM		
1607337-15A	10	PAH_LL_SDOD1	SAMP	76629	8/10/2016 12:34:00 PM		
1607337-16A	10	PAH_LL_SDOD1	SAMP	76629	8/10/2016 1:14:00 PM		
1607337-17A	10	PAH_LL_SDOD1	SAMP	76629	8/10/2016 1:54:00 PM		
1607337-18A	10	PAH_LL_SDOD1	SAMP	76629	8/10/2016 2:34:00 PM		
1607337-19A	10	PAH_LL_SDOD1	SAMP	76629	8/10/2016 3:14:00 PM		
1607337-20A	10	PAH_LL_SDOD1	SAMP	76629	8/10/2016 3:55:00 PM		
1607337-21A	10	PAH_LL_SDOD1	SAMP	76629	8/10/2016 4:35:00 PM		
DFTPP2-160810	1	PAH_LL_SDOD1	TUNE	R87545	8/10/2016 5:15:00 PM		
ICV-160810	1	PAH_LL_SDOD1	ICV	R87545	8/10/2016 5:54:00 PM		
SB-160810	1	PAH_LL_SDOD1	SBLK	76629	8/10/2016 6:34:00 PM		
1607337-22A	10	PAH_LL_SDOD1	SAMP	76629	8/10/2016 7:14:00 PM		
1607337-23A	10	PAH_LL_SDOD1	SAMP	76629	8/10/2016 7:54:00 PM		
1607337-24A	10	PAH_LL_SDOD1	SAMP	76629	8/10/2016 8:34:00 PM		
1607337-25A	10	PAH_LL_SDOD1	SAMP	76629	8/10/2016 9:14:00 PM		
1607337-10AMS	10	PAH_LL_SDOD1	MS	76629	8/10/2016 9:54:00 PM		Low recovery for 11 analytes.
1607337-10AMSD	10	PAH_LL_SDOD1	MSD	76629	8/10/2016 10:34:00 PM		Low recovery for 11 analytes.
CCV1-160810	1	PAH_LL_SDOD1	CCV	R87545	8/10/2016 11:13:00 PM		

Std ID	Std Name	Type	Exp. Date
DFTPP160509	2.5 PPM 525 TUNE STD.	TUNE	05/07/2017
PAHCCV160806	1 PPM PAH CCV STANDARD	CCV	11/04/2016
PAHICV160806	2 PPM PAH ICV	ICV	11/04/2016
SVI160510-3	4000 PPM INTERNAL STANDAR	ALL	07/30/2017

Sequence Name: C:\msdchem\1\sequence\160810.S
Comment:
Operator:
Data Path: C:\MSDCHEM\1\DATA\160810\
Instrument Name: GCMS #8
Instrument Control Pre-Seq Cmd:
Data Analysis Pre-Seq Cmd:

Instrument Control Post-Seq Cmd:
Data Analysis Post-Seq Cmd:

Method Sections To Run
(X) Full Method
( ) Reprocessing Only

On A Barcode Mismatch
(X) Inject Anyway
( ) Don't Inject

Line		Sample Name/Misc Info		
1)	Sample	1	16081001 DFTPPPAH	DFTPP-160810
2)	Sample	2	16081002 PAH160806	ICV-160810
3)	Sample	3	16081003 PAH160806	LCS-76629
4)	Sample	4	16081004 PAH160806	MB-76629
5)	Sample	5	16081005 PAH160806	1607337-09A
6)	Sample	6	16081006 PAH160806	1607337-10A
7)	Sample	7	16081007 PAH160806	1607337-11A
8)	Sample	8	16081008 PAH160806	1607337-12A
9)	Sample	9	16081009 PAH160806	1607337-14A
10)	Sample	10	16081010 PAH160806	1607337-15A
11)	Sample	11	16081011 PAH160806	1607337-16A
12)	Sample	12	16081012 PAH160806	1607337-17A
13)	Sample	13	16081013 PAH160806	1607337-18A
14)	Sample	14	16081014 PAH160806	1607337-19A
15)	Sample	15	16081015 PAH160806	1607337-20A
16)	Sample	16	16081016 PAH160806	1607337-21A
17)	Sample	17	16081017 DFTPPPAH	DFTPP2-160810
18)	Sample	18	16081018 PAH160806	ICV2-160810
19)	Sample	19	16081019 PAH160806	SB-160810
20)	Sample	20	16081020 PAH160806	1607337-22A
21)	Sample	21	16081021 PAH160806	1607337-23A
22)	Sample	22	16081022 PAH160806	1607337-24A
23)	Sample	23	16081023 PAH160806	1607337-25A
24)	Sample	24	16081024 PAH160806	1607337-10AMS
25)	Sample	25	16081025 PAH160806	1607337-10AMSD
26)	Sample	26	16081026 PAH160806	CCV1-160810
27)	Sample	27	16081027 DFTPPPAH	DFTPP-160810
28)	Sample	28	16081028 PAH160806	ICV-160810
29)	Sample	29	16081029 PAH160806	LCS-76689
30)	Sample	30	16081030 PAH160806	LCSD-76689
31)	Sample	31	16081031 PAH160806	LCS-76696
32)	Sample	33	16081033 PAH160806	MB-76696
33)	Sample	34	16081034 PAH160806	MB-76689
34)	Sample	35	16081035 PAH160806	1607185-39A
35)	Sample	36	16081036 PAH160806	1607184-26A
36)	Sample	37	16081037 PAH160806	1608045-01A
37)	Sample	38	16081038 PAH160806	1608048-08D
38)	Sample	39	16081039 PAH160806	1608071-01D
39)	Sample	40	16081040 PAH160806	1608071-03D
40)	Sample	41	16081041 PAH160806	1608071-02D
41)	Sample	42	16081042 PAH160806	1608071-03DMS
42)	Sample	43	16081043 PAH160806	1608071-03DMSD
43)	Sample	44	16081044 PAH160806	1607185-39A

Sequence Name: C:\msdchem\1\sequence\160810.S

Line	Type	Vial	DataFile	Method	Sample Name

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **8/3/2016 8:44:07 AM**
Digestion:
Prep End Date: **8/3/2016 2:45:00 PM**

Prep Batch **76629** Prep Code: **3550_PAHDOD** Technician: **Alex Robbins**

Prep Factor Units: **mL/g**

Equipment List

Turbo-Vap # 1,2,3
Balance # 25
Sonicators # 1,2,3,4

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607337-09A	Soil		10.16	10	0.984	1 of 1	
1607337-10A	Soil		10.02	10	0.998	1 of 3	
1607337-10AMS	Soil		10.05	10	0.995	1 of	
1607337-10AMSD	Soil		10.36	10	0.965	1 of	
1607337-11A	Soil		10.11	10	0.989	1 of 1	
1607337-12A	Soil		10.02	10	0.998	1 of 1	
1607337-14A	Soil		10.11	10	0.989	1 of 1	
1607337-15A	Soil		10.36	10	0.965	1 of 1	
1607337-16A	Soil		10.09	10	0.991	1 of 1	
1607337-17A	Soil		10.28	10	0.973	1 of 1	
1607337-18A	Soil		10.18	10	0.982	1 of 1	
1607337-19A	Soil		10.11	10	0.989	1 of 1	
1607337-20A	Soil		10.56	10	0.947	1 of 1	
1607337-21A	Soil		10.29	10	0.972	1 of 1	
1607337-22A	Soil		10.1	10	0.990	1 of 1	
1607337-23A	Soil		10.3	10	0.971	1 of 1	
1607337-24A	Soil		10.02	10	0.998	1 of 1	
1607337-25A	Soil		10.24	10	0.977	1 of 1	
LCS-76629	Soil		10	10	1.000	of	
MB-76629	Soil		10	10	1.000	of	

Number	Reagent Name	Amt	Units	Exp. Da
10394	Purified Sodium Sulfate	10	g	05/23/2026
10419	Methylene Chloride	8	ml	05/31/2026
10536	Whatman 41 Filter	1	filter	07/11/2026
10591	1:1 MeCl2/Acetone	120	ml	07/26/2026

Spk ID	Spike Name	SampType	Amt (mL or g)	Exp. Date
PAHPREP160727	200 PPM PAH Spike Mix	LCS/MS/MSD	0.05	10/25/2016
SVPREP160802	40 PPM Surrogate Standard	ALL	0.25	10/31/2016

REVIEWED BY
By Janice Whitt at 2:52:18 PM, 8/18/2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **8/3/2016 8:44:07 AM**
Digestion:
Prep End Date: 8/3/2016 2:45 PM

Prep Batch **76629** Prep Code: **3550_PAHDOD** Technician: **Alex Robbins**

Prep Factor Units: **mL/g**

Equipment List
Turbo-Vap # 1,2,3
Balance # 25
Sonicators # 1,2,3,4

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607337-09A	Soil		10 .16	10	1.000	1 of 1	
1607337-10A	Soil		10 .02	10	1.000	1 of 3	
1607337-10AMS	Soil AF 8/3		10 .05	10	1.000	1 of	
~~Associated w/76628~~							
1607337-10AMSD	Soil AF 8/3		10 .36	10	1.000	1 of	
~~Associated w/76628~~							
1607337-11A	Soil		10 .11	10	1.000	1 of 1	
1607337-12A	Soil		10 .02	10	1.000	1 of 1	
1607337-14A	Soil		10 .11	10	1.000	1 of 1	
1607337-15A	Soil		10 .36	10	1.000	1 of 1	
1607337-16A	Soil		10 .09	10	1.000	1 of 1	
1607337-17A	Soil		10 .25	10	1.000	1 of 1	
1607337-18A	Soil		10 .16	10	1.000	1 of 1	
1607337-19A	Soil		10 .11	10	1.000	1 of 1	
1607337-20A	Soil		10 .56	10	1.000	1 of 1	
1607337-21A	Soil		10 .29	10	1.000	1 of 1	
1607337-22A	Soil		10 .10	10	1.000	1 of 1	
1607337-23A	Soil		10 .30	10	1.000	1 of 1	
1607337-24A	Soil		10 .02	10	1.000	1 of 1	
LCS-76629	Soil		10	10	1.000	of	
Associated w/76628							
MB-76629	Soil		10	10	1.000	of	
AF 8/3 Associated w/76628							

~~AF 8/3 337-24A~~
337-25A

10:24

Number	Reagent Name	Amt	Units	Exp. Da
10394	Purified Sodium Sulfate	10	g	05/23/2026
10419	Methylene Chloride	8	ml	05/31/2026
10536	Whatman 41 Filter	1	filter	07/11/2026
10591	1:1 MeCl2/Acetone	120	ml	07/26/2026

Spk ID	Spike Name	SampType	Amt (mL or g)	Exp. Date
PAHPREP160727	200 PPM PAH Spike Mix	LCS/MS/MSD	0.05	10/25/2016
SVPREP160802	40 PPM Surrogate Standard	ALL	0.25	10/31/2016

REVIEWED BY
By Janice Whitt at 2:52:15 PM, 8/18/2016

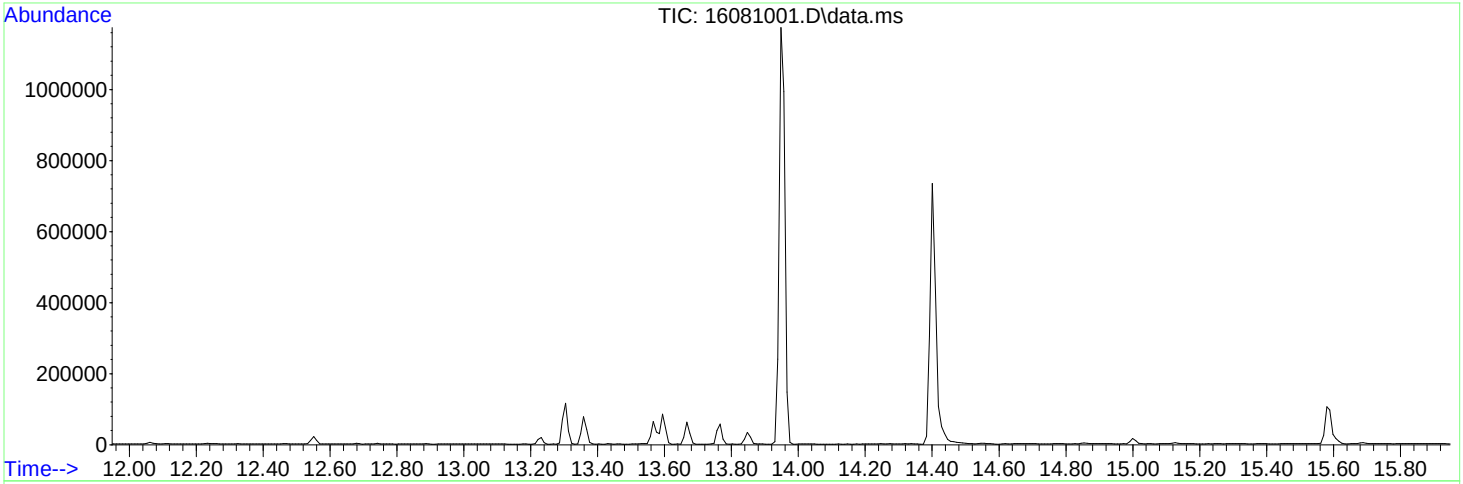
AF 8/3/16

JPG 8/3/16

Data Path : C:\msdchem\1\DATA\160810\
Data File : 16081001.D
Acq On : 10 Aug 2016 6:35 am
Operator :
Sample : DFTPP-160810
Misc : TUNE
ALS Vial : 1 Sample Multiplier: 1

Integration File: RTEINT.P

Method : C:\msdchem\1\METHODS\DFTPPPAH.M
Title : CLP BNA Calibration - Large Volume Injection
Last Update : Thu Aug 27 07:24:43 2015



AutoFind: Scans 425, 426, 427; Background Corrected with Scan 421

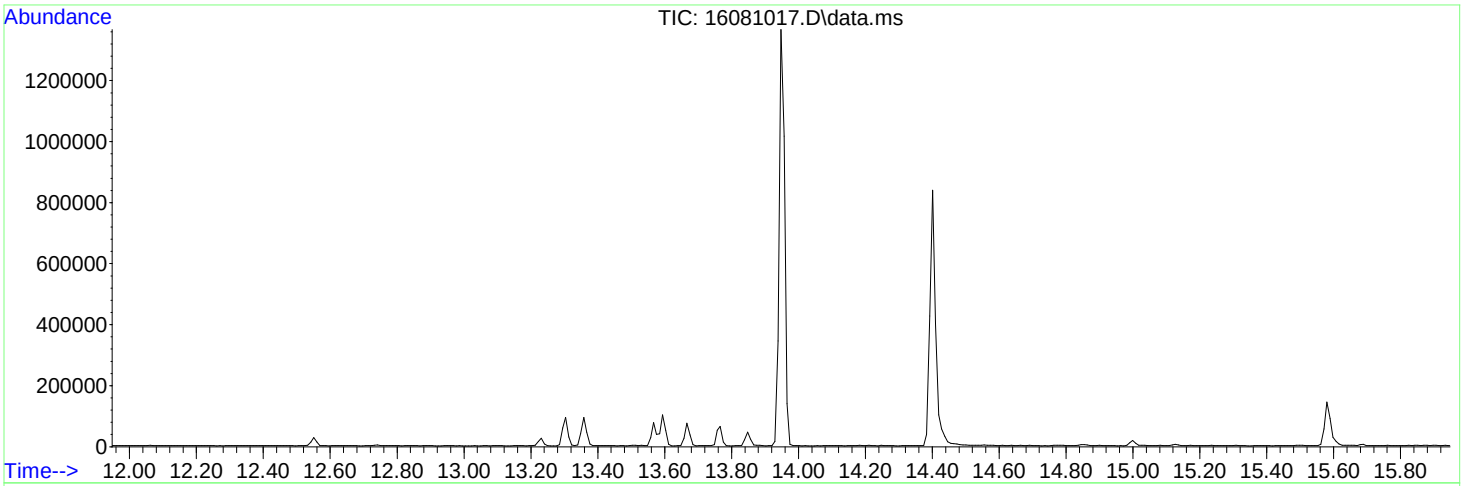
Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	10	80	43.9	36728	PASS
68	69	0.00	2	0.0	0	PASS
69	198	0.00	100	46.3	38760	PASS
70	69	0.00	2	0.0	0	PASS
127	198	10	80	53.6	44901	PASS
197	198	0.00	2	0.0	0	PASS
198	198	100	100	100.0	83717	PASS
199	198	5	9	6.8	5725	PASS
275	198	10	60	27.5	23059	PASS
365	198	1	200	3.6	2994	PASS
441	442	0.01	24	15.8	17989	PASS
442	198	50	400	135.6	113545	PASS
443	442	15	24	19.7	22411	PASS

REVIEWED BY
By Janice Whitt at 2:52:20 PM, 8/18/2016

Data Path : C:\msdchem\1\DATA\160810\
Data File : 16081017.D
Acq On : 10 Aug 2016 5:15 pm
Operator :
Sample : DFTPP2-160810
Misc : TUNE
ALS Vial : 17 Sample Multiplier: 1

Integration File: RTEINT.P

Method : C:\msdchem\1\METHODS\DFTPPPAH.M
Title : CLP BNA Calibration - Large Volume Injection
Last Update : Thu Aug 27 07:24:43 2015



AutoFind: Scans 425, 426, 427; Background Corrected with Scan 421

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	10	80	43.3	40965	PASS
68	69	0.00	2	0.0	0	PASS
69	198	0.00	100	45.9	43394	PASS
70	69	0.00	2	0.0	0	PASS
127	198	10	80	52.4	49549	PASS
197	198	0.00	2	0.0	0	PASS
198	198	100	100	100.0	94610	PASS
199	198	5	9	6.8	6469	PASS
275	198	10	60	27.6	26100	PASS
365	198	1	200	3.7	3511	PASS
441	442	0.01	24	16.1	21212	PASS
442	198	50	400	139.6	132122	PASS
443	442	15	24	19.8	26215	PASS

REVIEWED BY
By Janice Whitt at 2:52:23 PM, 8/18/2016

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160810\
Data File : 16081002.D
Acq On : 10 Aug 2016 7:14 am
Operator :
Sample : ICV-160810
Misc : ICV
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Aug 11 08:28:55 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration

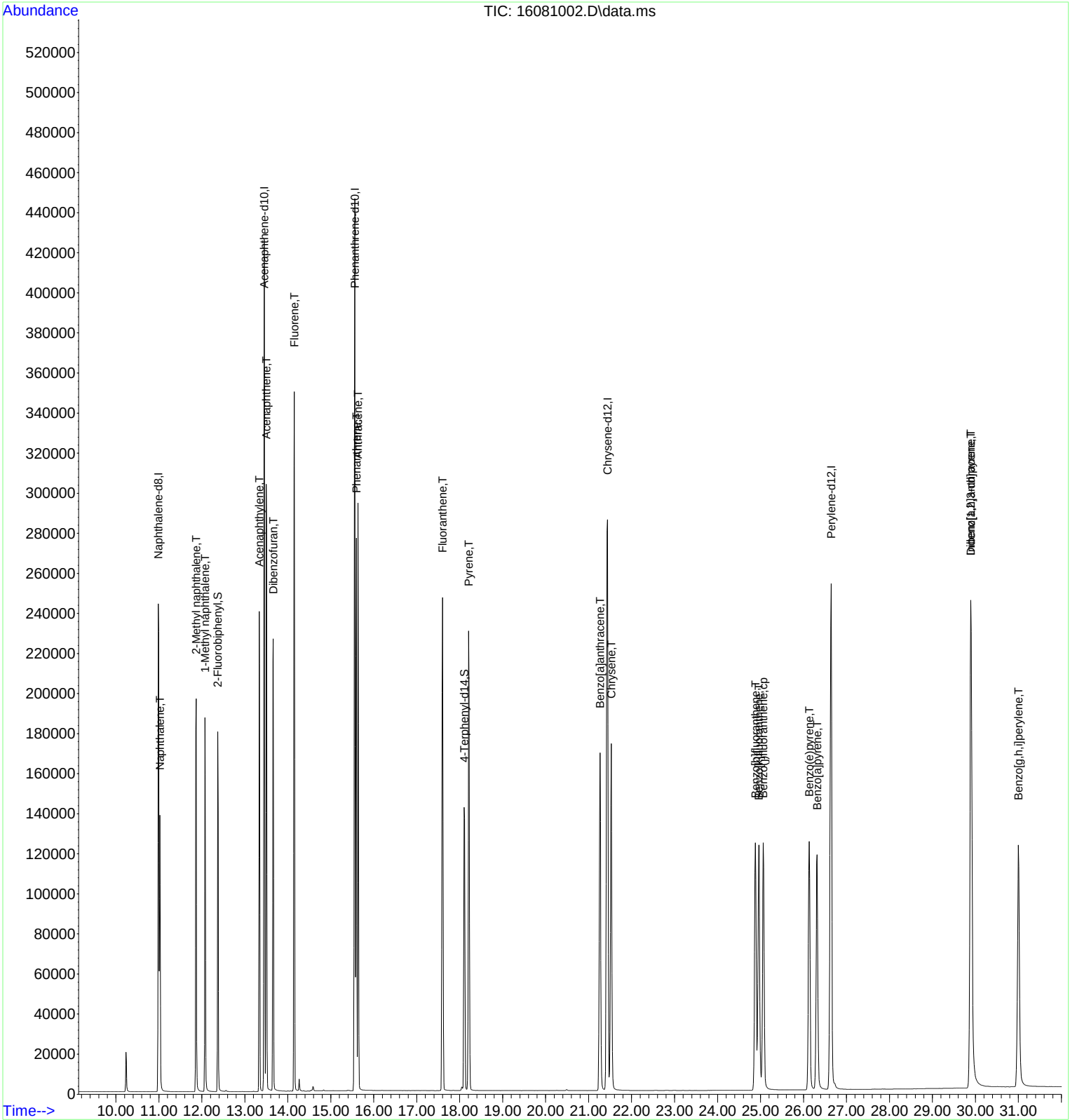
Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	10.987	136	315025	4000.00	ug/kg	119
6) Acenaphthene-d10	13.448	164	238899	4000.00	ug/kg	147
11) Phenanthrene-d10	15.557	188	519488	4000.00	ug/kg	101
17) Chrysene-d12	21.438	240	461831	4000.00	ug/kg	100
20) Perylene-d12	26.644	264	461511	4000.00	ug/kg	110
System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.370	172	145053	2069.78	ug/kg	-0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery = 51.74%			
15) 4-Terphenyl-d14	18.112	244	169966	1861.01	ug/kg	-0.01
Spiked Amount 4000.000	Range 50 - 135		Recovery = 46.53%#			
Target Compounds						Qvalue
2) Naphthalene	11.022	128	143479	1909.36	ug/kg	100
3) 2-Methyl naphthalene	11.866	142	112267	2191.75	ug/kg	96
4) 1-Methyl naphthalene	12.072	142	104077	2210.18	ug/kg	97
7) Acenaphthylene	13.334	152	225873	2043.62	ug/kg	100
8) Acenaphthene	13.497	153	141896	1964.46	ug/kg	97
9) Dibenzofuran	13.661	168	216760	1748.39	ug/kg	88
10) Fluorene	14.150	166	182829	1705.38	ug/kg	99
12) Phenanthrene	15.596	178	265997	2011.47	ug/kg	100
13) Anthracene	15.634	178	259161	1911.21	ug/kg	100
14) Fluoranthene	17.601	202	259046	1837.15	ug/kg	94
16) Pyrene	18.208	202	255886	1815.09	ug/kg	96
18) Benzo[a]anthracene	21.264	228	231990	1994.50	ug/kg	100
19) Chrysene	21.525	228	219616	1994.88	ug/kg	100
21) Benzo[b]fluoranthene	24.880	252	233800	1998.07	ug/kg	99
22) Benzo[k]fluoranthene	24.966	252	212782	2182.96	ug/kg	98
23) Benzo(j)fluoranthene	25.063	252	206595	2184.42	ug/kg	100
24) Benzo(e)pyrene	26.133	252	231321	1986.59	ug/kg	100
25) Benzo[a]pyrene	26.316	252	224484	2050.07	ug/kg	100
26) Indeno[1,2,3-cd]pyrene	29.902	276	283390	2086.26	ug/kg	100
27) Dibenz[a,h]anthracene	29.893	278	232788	2137.20	ug/kg	99
28) Benzo[g,h,i]perylene	31.001	276	239600	1986.98	ug/kg	97

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160810\
Data File : 16081002.D
Acq On : 10 Aug 2016 7:14 am
Operator :
Sample : ICV-160810
Misc : ICV
ALS Vial : 2 Sample Multiplier: 1

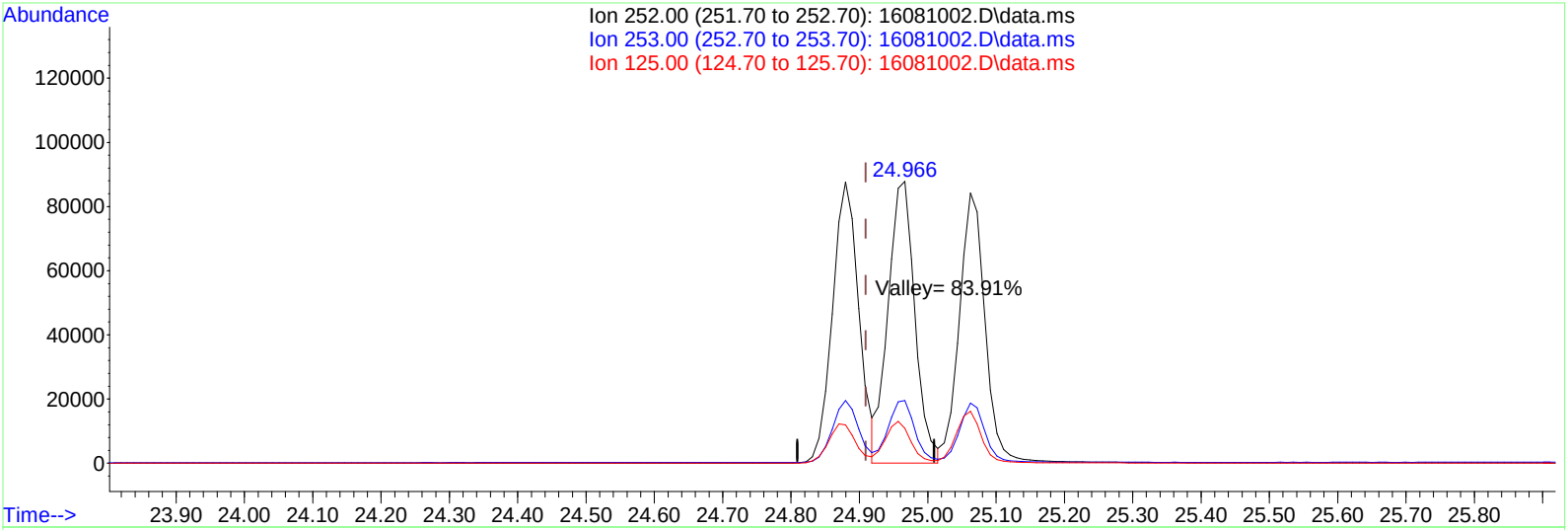
Quant Time: Aug 11 08:28:55 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration

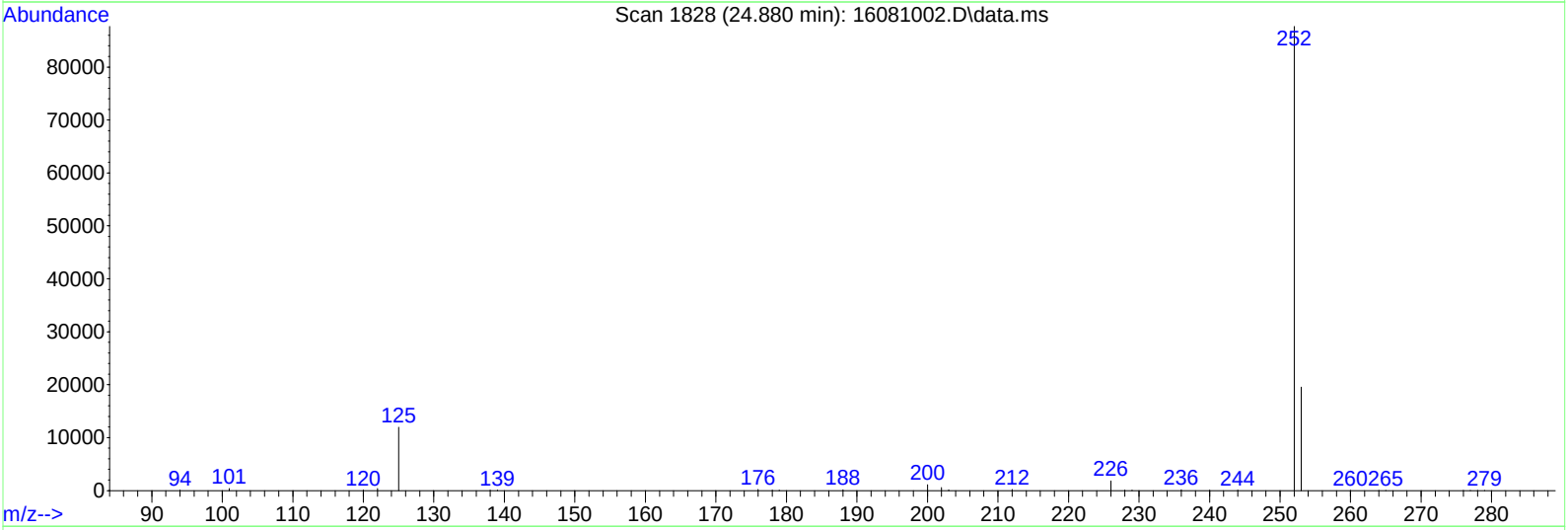


Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\160810\
Data File : 16081002.D
Acq On : 10 Aug 2016 7:14 am
Operator :
Sample : ICV-160810
Misc : ICV
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Aug 10 07:46:08 2016
Quant Method : C:\MSDCHEM\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration





TIC: 16081002.D\data.ms

(21) Benzo[b]fluoranthene (T)

24.880min (-0.030) 1998.07ug/kg

response 233800

Ion	Exp%	Act%
252.00	100	100
253.00	21.90	22.02
125.00	13.20	13.58
0.00	0.00	0.00

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160810\
Data File : 16081003.D
Acq On : 10 Aug 2016 7:55 am
Operator :
Sample : LCS-76629
Misc : LCS
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Aug 11 08:28:58 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	10.987	136	341503	4000.00	ug/kg	129
6) Acenaphthene-d10	13.448	164	171128	4000.00	ug/kg	106
11) Phenanthrene-d10	15.557	188	394162	4000.00	ug/kg	77
17) Chrysene-d12	21.428	240	407790	4000.00	ug/kg	88
20) Perylene-d12	26.634	264	426755	4000.00	ug/kg	102

System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.370	172	46286	609.25	ug/kg	-0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery = 15.23%#			
15) 4-Terphenyl-d14	18.102	244	61196	883.10	ug/kg	-0.02
Spiked Amount 4000.000	Range 50 - 135		Recovery = 22.08%#			

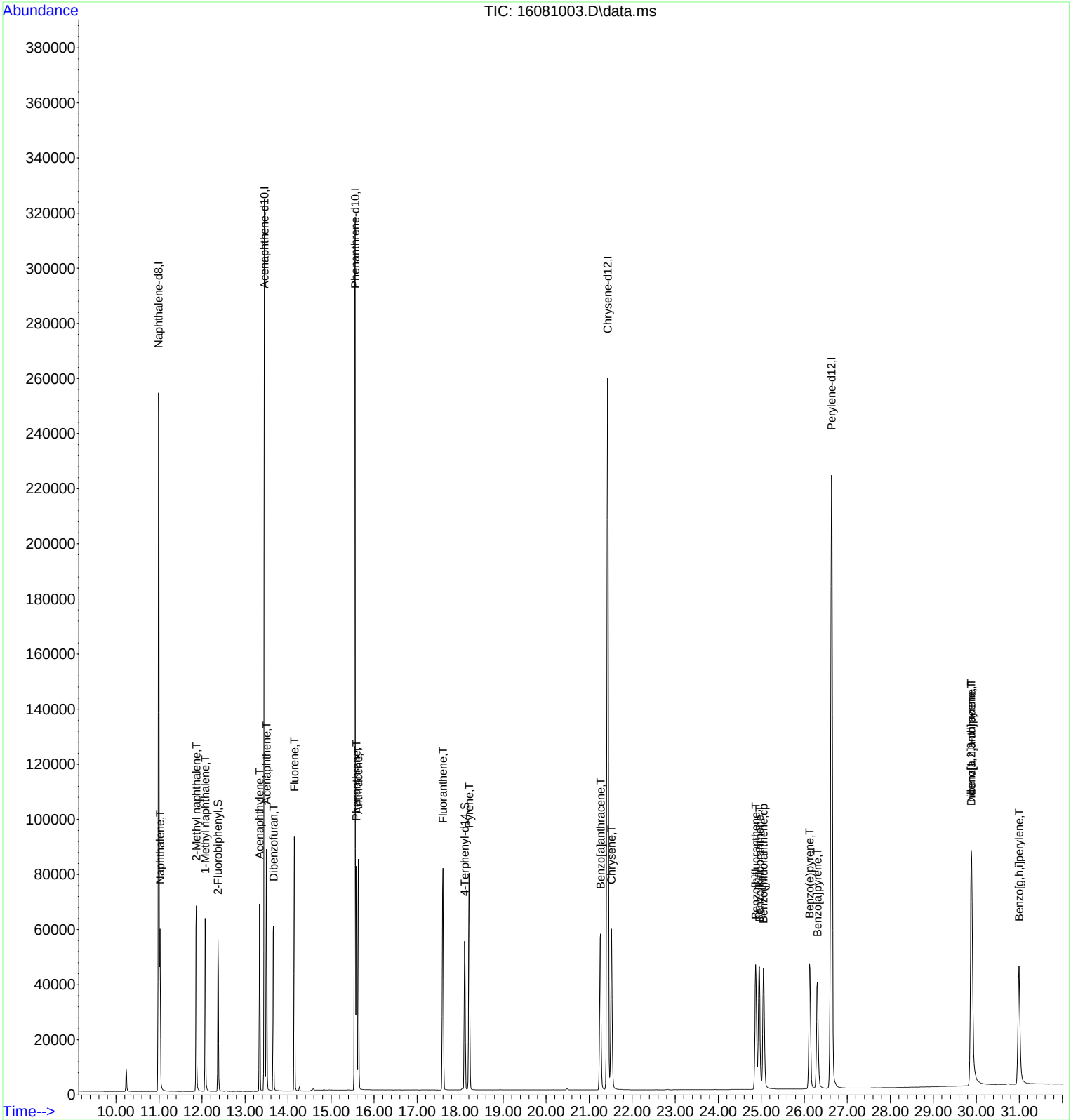
Target Compounds						Qvalue
2) Naphthalene	11.022	128	59132	725.89	ug/kg	100
3) 2-Methyl naphthalene	11.866	142	39135	704.78	ug/kg	97
4) 1-Methyl naphthalene	12.072	142	35851	702.30	ug/kg	97
7) Acenaphthylene	13.335	152	63998	808.34	ug/kg	100
8) Acenaphthene	13.498	153	39957	772.25	ug/kg	98
9) Dibenzofuran	13.661	168	58907	663.31	ug/kg	87
10) Fluorene	14.143	166	50309	655.11	ug/kg	98
12) Phenanthrene	15.586	178	83519	818.77	ug/kg	99
13) Anthracene	15.634	178	74429	723.41	ug/kg	99
14) Fluoranthene	17.601	202	87352	816.47	ug/kg	91
16) Pyrene	18.208	202	88456	826.95	ug/kg	100
18) Benzo[a]anthracene	21.264	228	81140	790.04	ug/kg	99
19) Chrysene	21.515	228	76972	791.83	ug/kg	100
21) Benzo[b]fluoranthene	24.870	252	84036	776.67	ug/kg	99
22) Benzo[k]fluoranthene	24.957	252	75353	836.02	ug/kg	98
23) Benzo(j)fluoranthene	25.053	252	74320	849.82	ug/kg	99
24) Benzo(e)pyrene	26.123	252	86522	803.57	ug/kg	100
25) Benzo[a]pyrene	26.306	252	77097	761.42	ug/kg	99
26) Indeno[1,2,3-cd]pyrene	29.893	276	106222	845.67	ug/kg	98
27) Dibenz[a,h]anthracene	29.883	278	84785	841.80	ug/kg	100
28) Benzo[g,h,i]perylene	30.992	276	90932	815.50	ug/kg	98

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160810\
Data File : 16081003.D
Acq On : 10 Aug 2016 7:55 am
Operator :
Sample : LCS-76629
Misc : LCS
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Aug 11 08:28:58 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160810\
Data File : 16081004.D
Acq On : 10 Aug 2016 8:35 am
Operator :
Sample : MB-76629
Misc : MBLK
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Aug 11 08:29:01 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	10.989	136	321590	4000.00	ug/kg	121
6) Acenaphthene-d10	13.450	164	168920	4000.00	ug/kg	104
11) Phenanthrene-d10	15.549	188	380067	4000.00	ug/kg	74
17) Chrysene-d12	21.430	240	389739	4000.00	ug/kg	84
20) Perylene-d12	26.635	264	409818	4000.00	ug/kg	97

System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.372	172	47442	663.14	ug/kg	-0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery = 16.58%#			
15) 4-Terphenyl-d14	18.104	244	60744	909.09	ug/kg	-0.02
Spiked Amount 4000.000	Range 50 - 135		Recovery = 22.73%#			

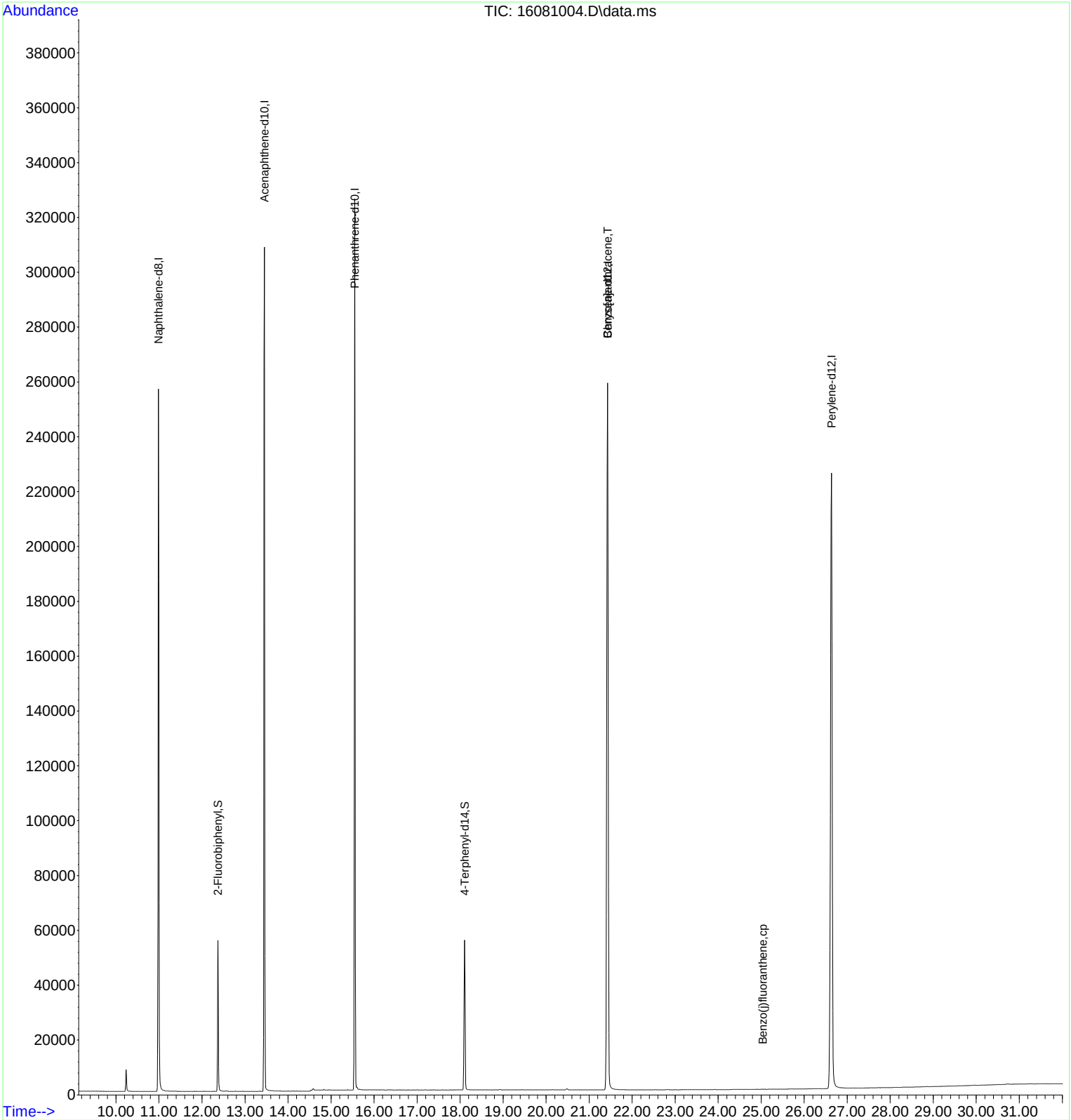
Target Compounds						Qvalue
18) Benzo[a]anthracene	21.430	228	1059	10.79	ug/kg#	70
23) Benzo(j)fluoranthene	25.045	252	13	0.15	ug/kg#	1

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160810\
Data File : 16081004.D
Acq On : 10 Aug 2016 8:35 am
Operator :
Sample : MB-76629
Misc : MBLK
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Aug 11 08:29:01 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160810\
Data File : 16081005.D
Acq On : 10 Aug 2016 9:15 am
Operator :
Sample : 1607337-09A
Misc : SAMP
ALS Vial : 5 Sample Multiplier: 10

Quant Time: Aug 11 08:46:34 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	10.987	136	321240	4000.00	ug/kg	121
6) Acenaphthene-d10	13.448	164	215177	4000.00	ug/kg	133
11) Phenanthrene-d10	15.558	188	502648	4000.00	ug/kg	98
17) Chrysene-d12	21.429	240	477363	4000.00	ug/kg	103
20) Perylene-d12	26.635	264	465364	4000.00	ug/kg	111

System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.377	172	5375	75.21	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 1.88%#			
15) 4-Terphenyl-d14	18.103	244	7108	80.44	ug/kg	-0.02
Spiked Amount 4000.000	Range 50 - 135		Recovery = 2.01%#			

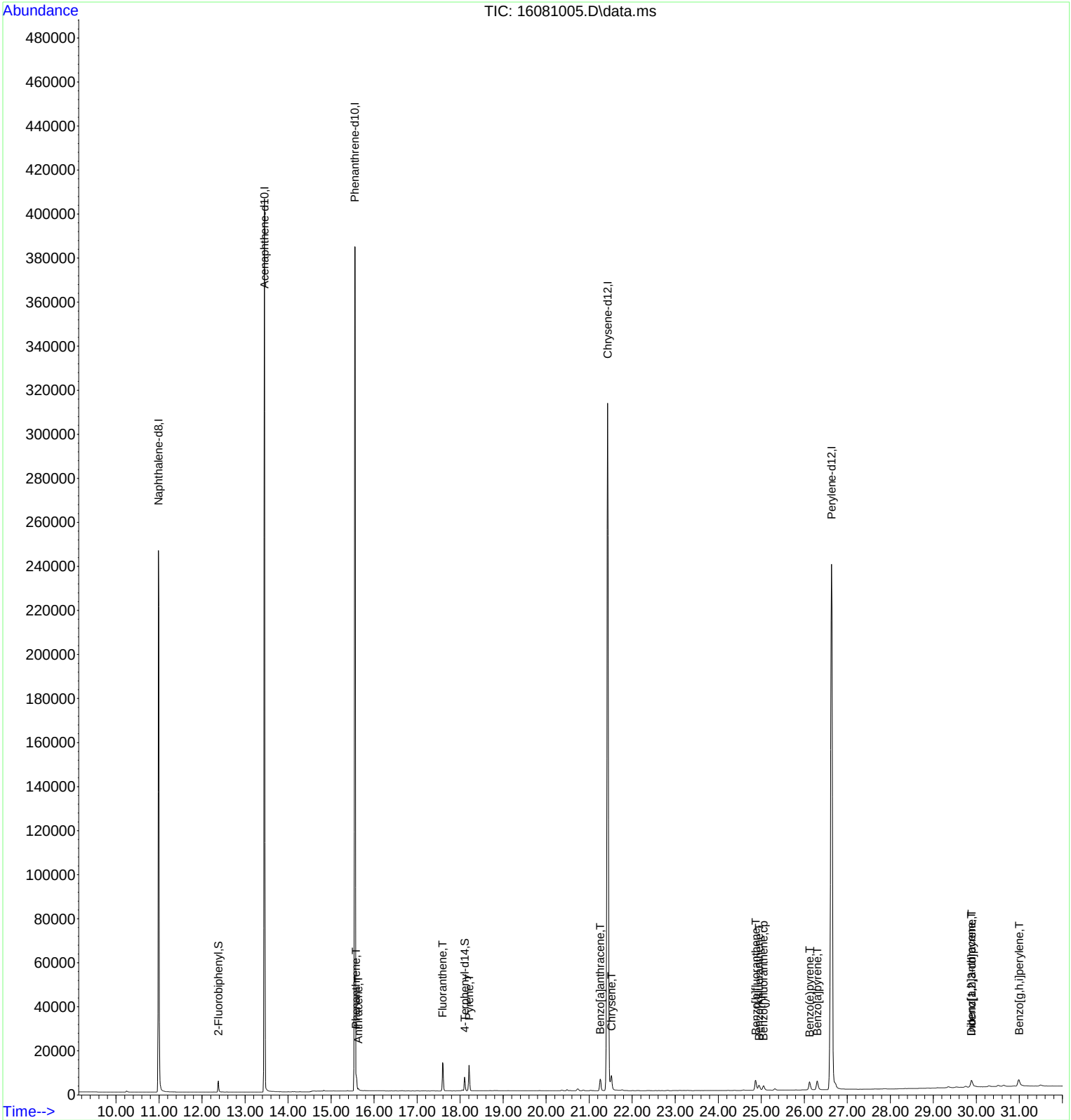
Target Compounds						Qvalue
12) Phenanthrene	15.587	178	5380	38.72	ug/kg	99
13) Anthracene	15.635	178	815	6.21	ug/kg	99
14) Fluoranthene	17.602	202	14899	109.20	ug/kg	89
16) Pyrene	18.209	202	13141	96.34	ug/kg	98
18) Benzo[a]anthracene	21.255	228	7622	63.40	ug/kg	100
19) Chrysene	21.516	228	9021	79.28	ug/kg	99
21) Benzo[b]fluoranthene	24.871	252	9291	78.74	ug/kg	99
22) Benzo[k]fluoranthene	24.948	252	3613	36.76	ug/kg	96
23) Benzo(j)fluoranthene	25.054	252	3770	39.53	ug/kg	94
24) Benzo(e)pyrene	26.124	252	7234	61.61	ug/kg	96
25) Benzo[a]pyrene	26.297	252	8916	80.75	ug/kg	97
26) Indeno[1,2,3-cd]pyrene	29.893	276	6838	49.92	ug/kg	90
27) Dibenz[a,h]anthracene	29.874	278	1293	11.77	ug/kg	92
28) Benzo[g,h,i]perylene	30.992	276	7491	61.61	ug/kg	100

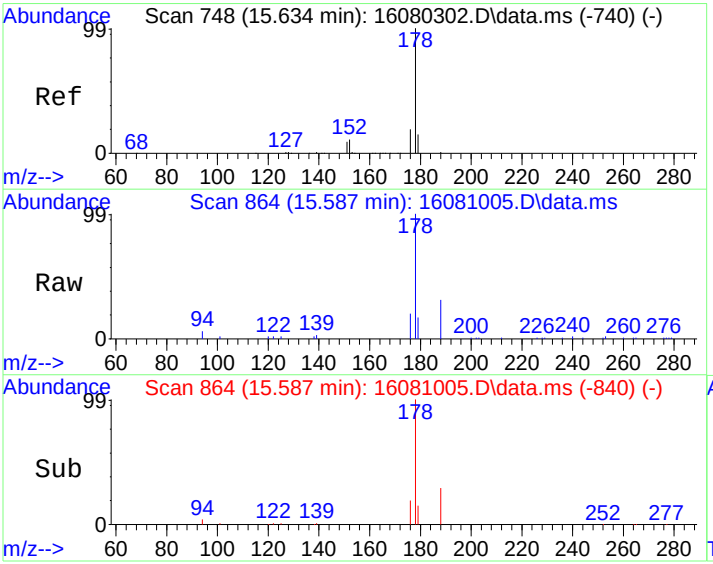
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160810\
Data File : 16081005.D
Acq On : 10 Aug 2016 9:15 am
Operator :
Sample : 1607337-09A
Misc : SAMP
ALS Vial : 5 Sample Multiplier: 10

Quant Time: Aug 11 08:46:34 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration

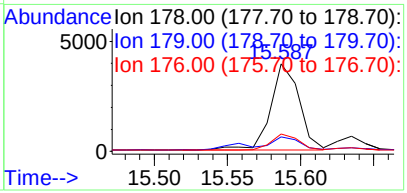


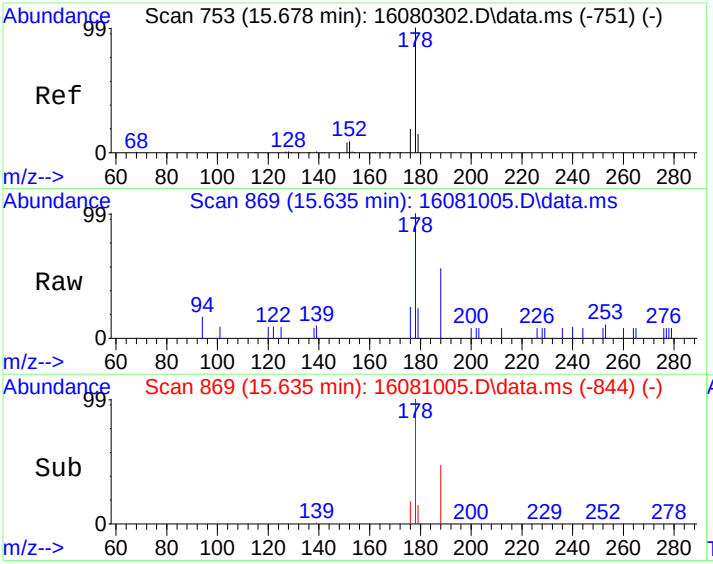


#12
Phenanthrene
Concen: 38.72 ug/kg
RT: 15.587 min Scan# 864
Delta R.T. -0.019 min
Lab File: 16081005.D
Acq: 10 Aug 2016 9:15 am

Tgt Ion:178 Resp: 5380

Ion	Ratio	Lower	Upper
178	100		
179	15.1	0.0	35.7
176	18.9	0.0	38.8

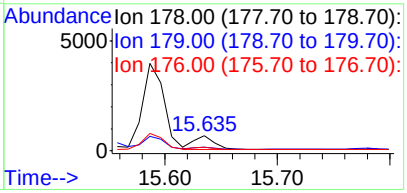


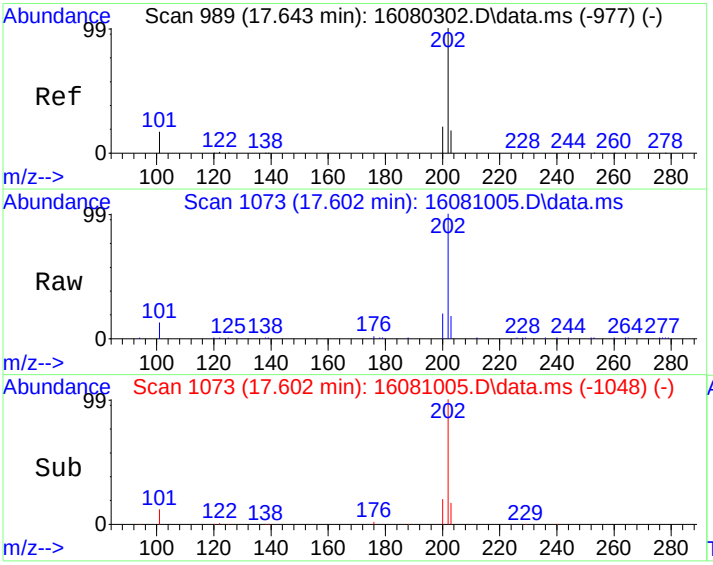


#13
Anthracene
Concen: 6.21 ug/kg
RT: 15.635 min Scan# 869
Delta R.T. -0.010 min
Lab File: 16081005.D
Acq: 10 Aug 2016 9:15 am

Tgt Ion:178 Resp: 815

Ion	Ratio	Lower	Upper
178	100		
179	15.4	0.0	35.5
176	18.1	0.0	38.7

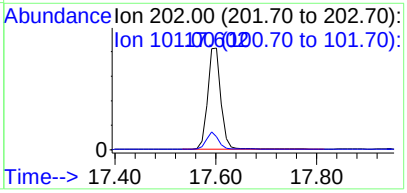


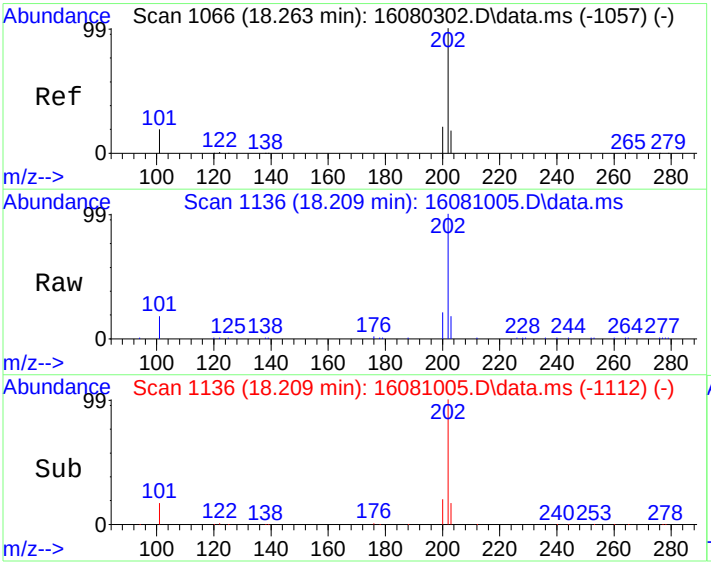


#14
Fluoranthene
Concen: 109.20 ug/kg
RT: 17.602 min Scan# 1073
Delta R.T. -0.010 min
Lab File: 16081005.D
Acq: 10 Aug 2016 9:15 am

Tgt Ion:202 Resp: 14899

Ion	Ratio	Lower	Upper
202	100		
101	12.4	0.0	37.2

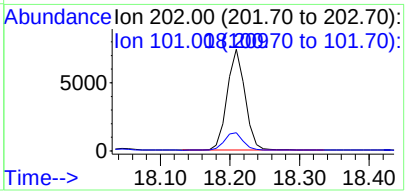


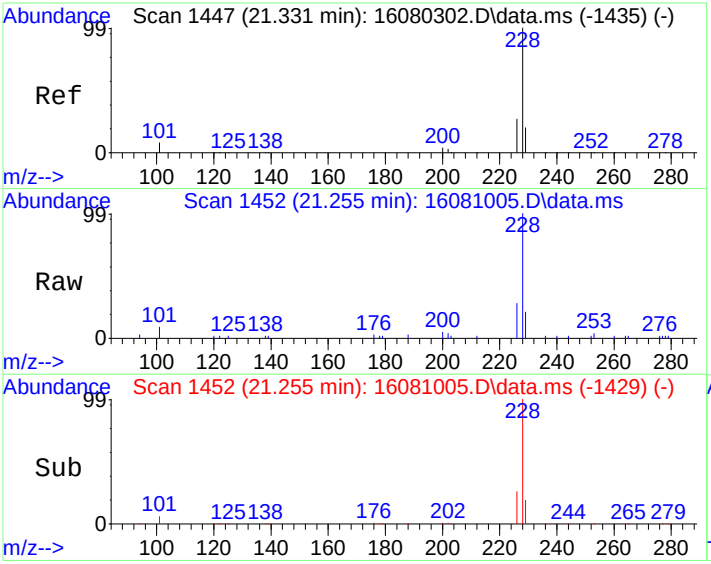


#16
Pyrene
Concen: 96.34 ug/kg
RT: 18.209 min Scan# 1136
Delta R.T. -0.020 min
Lab File: 16081005.D
Acq: 10 Aug 2016 9:15 am

Tgt Ion:202 Resp: 13141

Ion	Ratio	Lower	Upper
202	100		
101	17.3	0.0	38.0

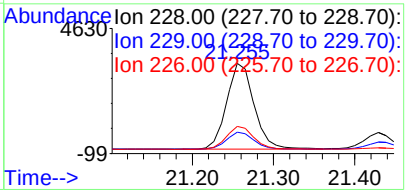


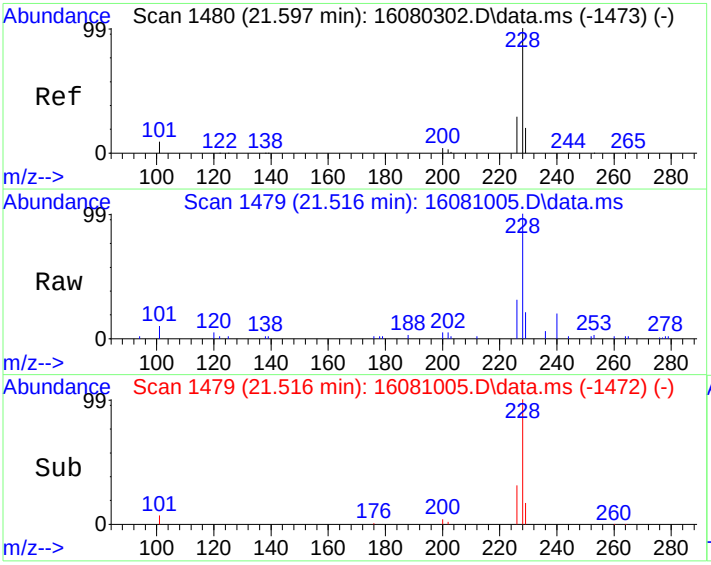


#18
Benzo[a]anthracene
Concen: 63.40 ug/kg
RT: 21.255 min Scan# 1452
Delta R.T. -0.029 min
Lab File: 16081005.D
Acq: 10 Aug 2016 9:15 am

Tgt Ion:228 Resp: 7622

Ion	Ratio	Lower	Upper
228	100		
229	19.7	0.0	39.9
226	26.5	6.7	46.7

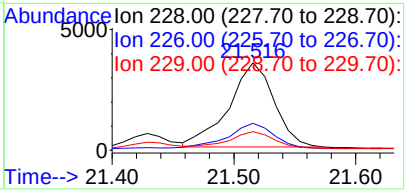


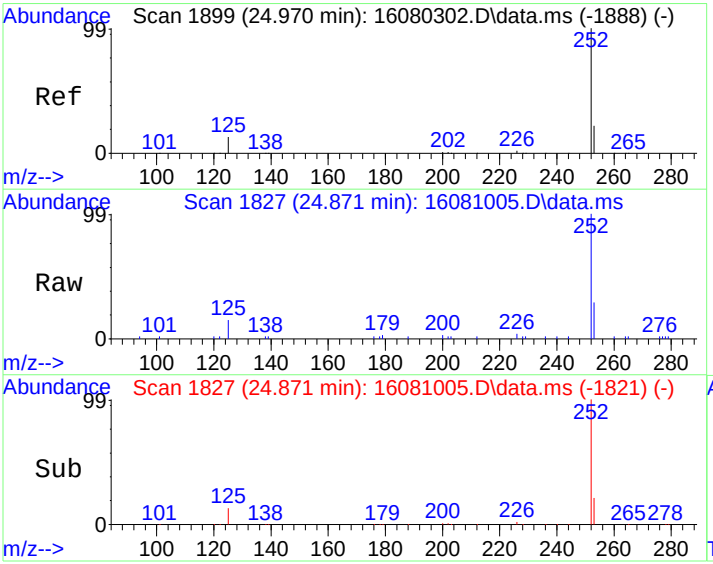


#19
Chrysene
Concen: 79.28 ug/kg
RT: 21.516 min Scan# 1479
Delta R.T. -0.029 min
Lab File: 16081005.D
Acq: 10 Aug 2016 9:15 am

Tgt Ion:228 Resp: 9021

Ion	Ratio	Lower	Upper
228	100		
226	29.8	9.3	49.3
229	19.9	0.0	39.8

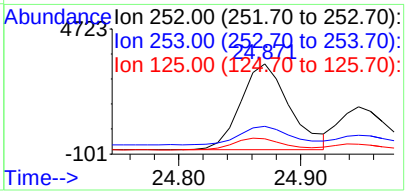


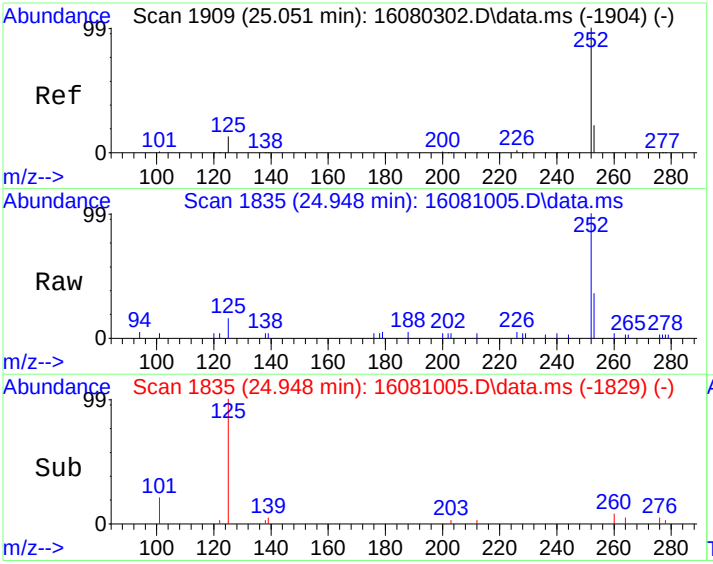


#21
Benzo[b]fluoranthene
Concen: 78.74 ug/kg
RT: 24.871 min Scan# 1827
Delta R.T. -0.039 min
Lab File: 16081005.D
Acq: 10 Aug 2016 9:15 am

Tgt Ion:252 Resp: 9291

Ion	Ratio	Lower	Upper
252	100		
253	21.5	1.9	41.9
125	13.0	0.0	33.2

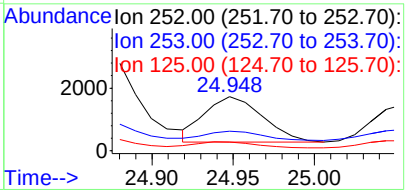


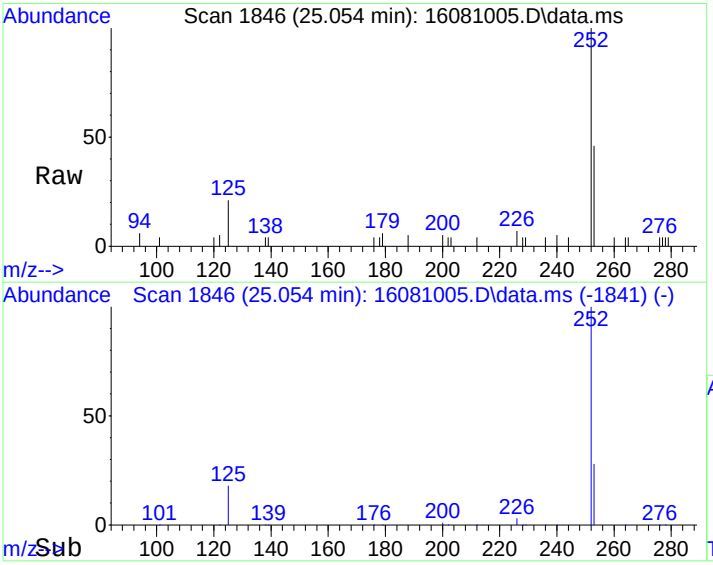


#22
Benzo[k]fluoranthene
Concen: 36.76 ug/kg
RT: 24.948 min Scan# 1835
Delta R.T. -0.039 min
Lab File: 16081005.D
Acq: 10 Aug 2016 9:15 am

Tgt Ion:252 Resp: 3613

Ion	Ratio	Lower	Upper
252	100		
253	19.8	2.1	42.1
125	12.6	0.0	33.9

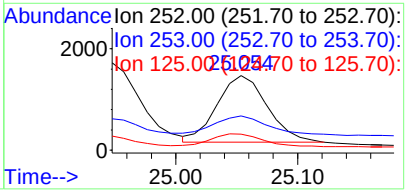


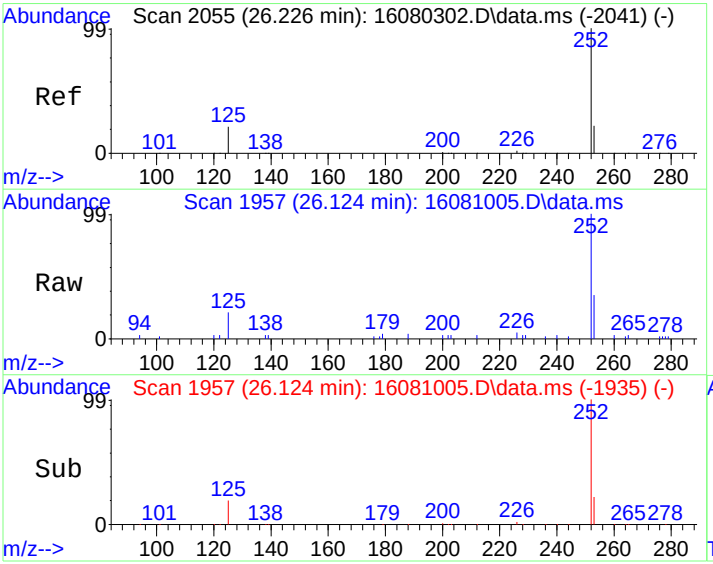


#23
Benzo(j)fluoranthene
Concen: 39.53 ug/kg
RT: 25.054 min Scan# 1846
Delta R.T. -0.039 min
Lab File: 16081005.D
Acq: 10 Aug 2016 9:15 am

Tgt Ion:252 Resp: 3770

Ion	Ratio	Lower	Upper
252	100		
253	27.5	1.9	41.9
125	19.4	0.0	39.4

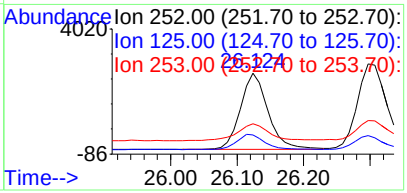


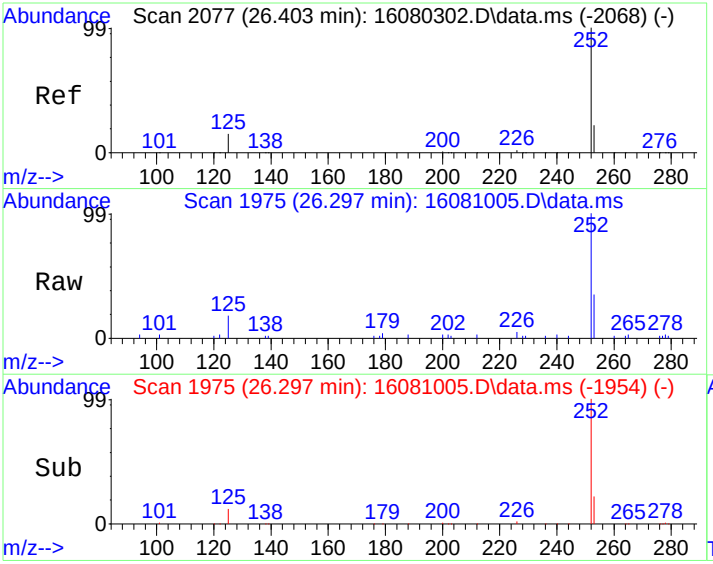


#24
Benzo(e)pyrene
Concen: 61.61 ug/kg
RT: 26.124 min Scan# 1957
Delta R.T. -0.039 min
Lab File: 16081005.D
Acq: 10 Aug 2016 9:15 am

Tgt Ion:252 Resp: 7234

Ion	Ratio	Lower	Upper
252	100		
125	20.2	0.5	40.5
253	25.6	2.1	42.1

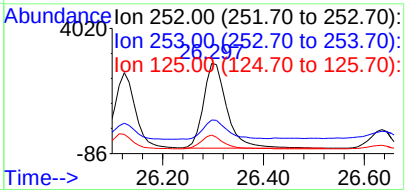


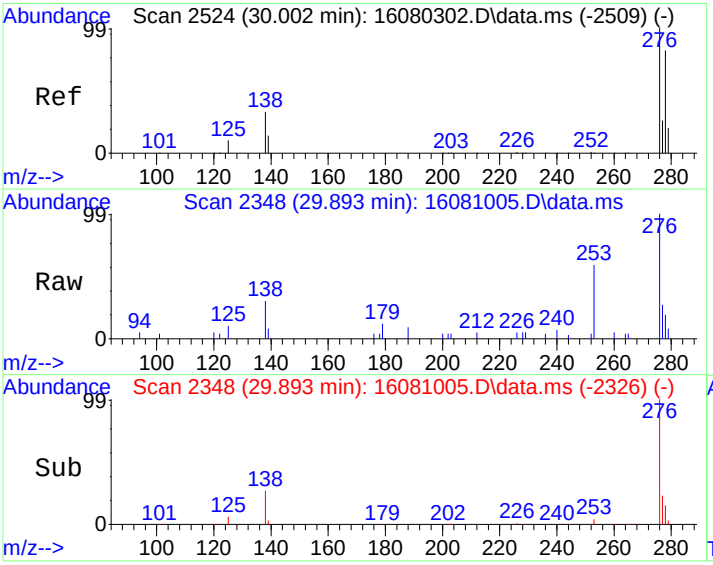


#25
Benzo[a]pyrene
Concen: 80.75 ug/kg
RT: 26.297 min Scan# 1975
Delta R.T. -0.049 min
Lab File: 16081005.D
Acq: 10 Aug 2016 9:15 am

Tgt Ion:252 Resp: 8916

Ion	Ratio	Lower	Upper
252	100		
253	22.3	1.9	41.9
125	16.3	0.0	33.5

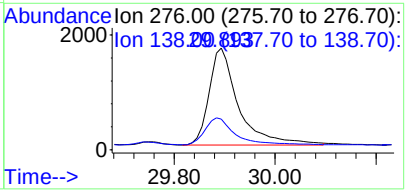


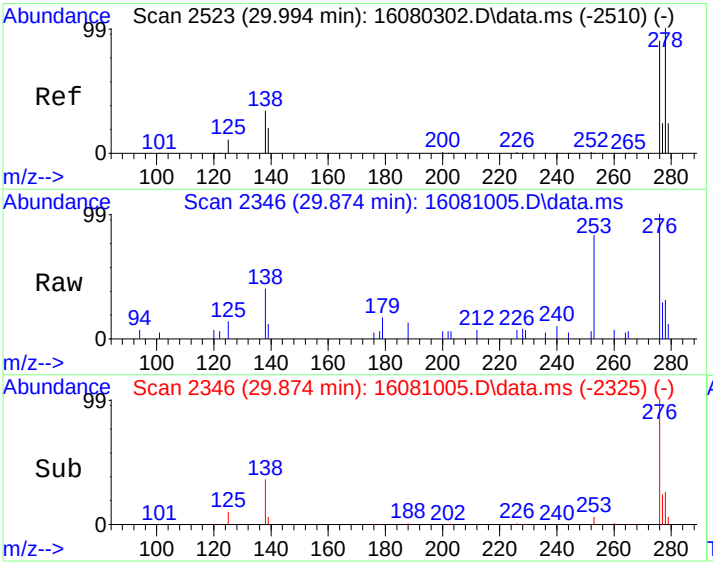


#26
Indeno[1,2,3-cd]pyrene
Concen: 49.92 ug/kg
RT: 29.893 min Scan# 2348
Delta R.T. -0.039 min
Lab File: 16081005.D
Acq: 10 Aug 2016 9:15 am

Tgt Ion:276 Resp: 6838

Ion	Ratio	Lower	Upper
276	100		
138	26.3	12.2	52.2

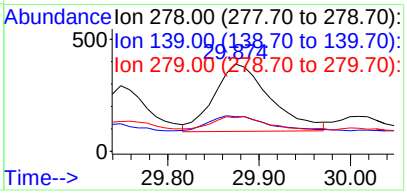


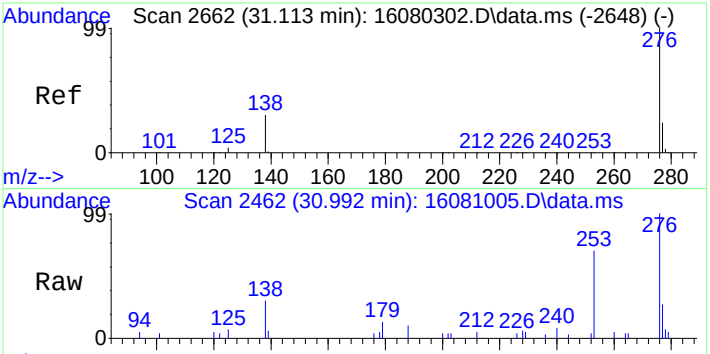


#27
Dibenz[a,h]anthracene
Concen: 11.77 ug/kg
RT: 29.874 min Scan# 2346
Delta R.T. -0.049 min
Lab File: 16081005.D
Acq: 10 Aug 2016 9:15 am

Tgt Ion:278 Resp: 1293

Ion	Ratio	Lower	Upper
278	100		
139	22.8	0.2	40.2
279	18.8	3.9	43.9

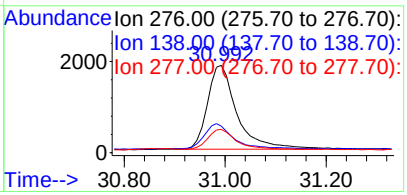




#28
Benzo[g,h,i]perylene
Concen: 61.61 ug/kg
RT: 30.992 min Scan# 2462
Delta R.T. -0.049 min
Lab File: 16081005.D
Acq: 10 Aug 2016 9:15 am

Tgt Ion:276 Resp: 7491

Ion	Ratio	Lower	Upper
276	100		
138	26.7	6.9	46.9
277	23.8	3.9	43.9



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160810\
Data File : 16081006.D
Acq On : 10 Aug 2016 9:55 am
Operator :
Sample : 1607337-10A
Misc : SAMP
ALS Vial : 6 Sample Multiplier: 10

Quant Time: Aug 11 08:46:43 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	10.987	136	329545	4000.00	ug/kg	124
6) Acenaphthene-d10	13.448	164	232665	4000.00	ug/kg	143
11) Phenanthrene-d10	15.557	188	502957	4000.00	ug/kg	98
17) Chrysene-d12	21.428	240	462371	4000.00	ug/kg	100
20) Perylene-d12	26.634	264	460616	4000.00	ug/kg	110

System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.377	172	5860	79.93	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 2.00%#			
15) 4-Terphenyl-d14	18.102	244	6880	77.81	ug/kg	-0.02
Spiked Amount 4000.000	Range 50 - 135		Recovery = 1.95%#			

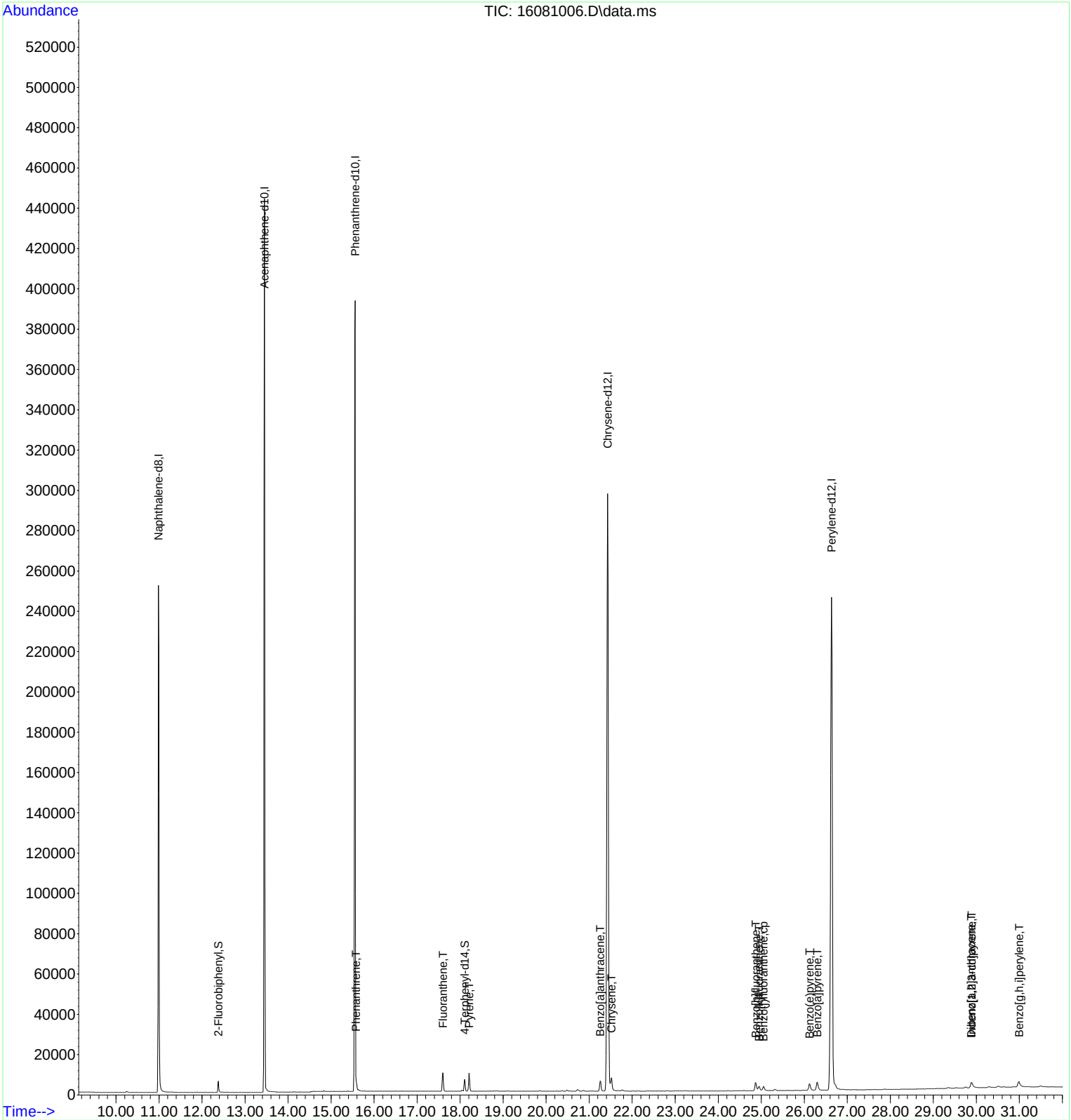
Target Compounds						Qvalue
12) Phenanthrene	15.586	178	3169	21.82	ug/kg	99
14) Fluoranthene	17.601	202	10711	78.46	ug/kg	90
16) Pyrene	18.208	202	10107	74.05	ug/kg	99
18) Benzo[a]anthracene	21.255	228	7464	64.10	ug/kg	100
19) Chrysene	21.515	228	8414	76.34	ug/kg	99
21) Benzo[b]fluoranthene	24.870	252	8162	69.89	ug/kg	99
22) Benzo[k]fluoranthene	24.947	252	3509	36.07	ug/kg	97
23) Benzo(j)fluoranthene	25.053	252	3647	38.64	ug/kg	91
24) Benzo(e)pyrene	26.123	252	6630	57.05	ug/kg	95
25) Benzo[a]pyrene	26.297	252	8925	81.66	ug/kg	97
26) Indeno[1,2,3-cd]pyrene	29.893	276	6116	45.11	ug/kg	88
27) Dibenz[a,h]anthracene	29.873	278	1081	9.94	ug/kg	95
28) Benzo[g,h,i]perylene	30.992	276	6604	54.87	ug/kg	99

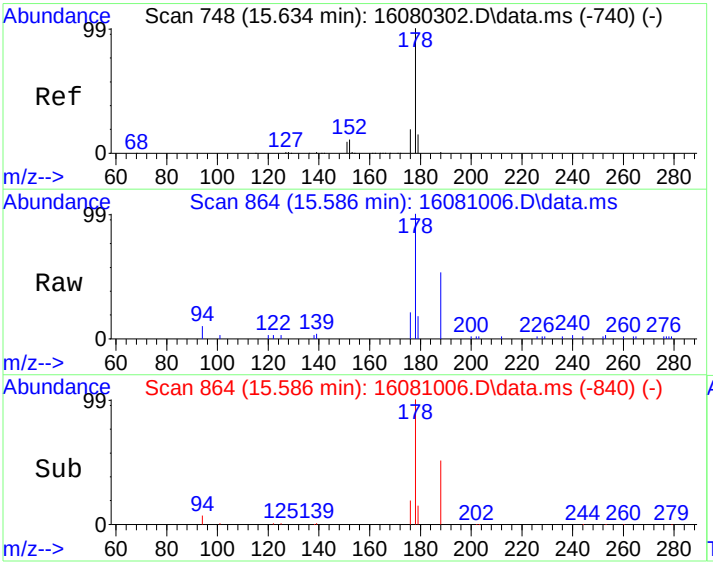
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160810\
Data File : 16081006.D
Acq On : 10 Aug 2016 9:55 am
Operator :
Sample : 1607337-10A
Misc : SAMP
ALS Vial : 6 Sample Multiplier: 10

Quant Time: Aug 11 08:46:43 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration

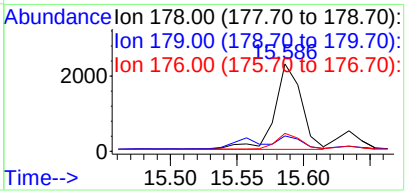


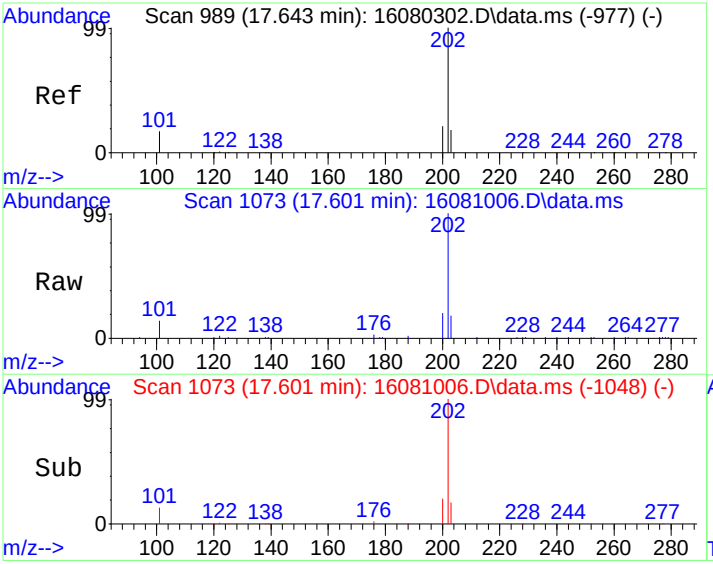


#12
Phenanthrene
Concen: 21.82 ug/kg
RT: 15.586 min Scan# 864
Delta R.T. -0.020 min
Lab File: 16081006.D
Acq: 10 Aug 2016 9:55 am

Tgt Ion:178 Resp: 3169

Ion	Ratio	Lower	Upper
178	100		
179	15.1	0.0	35.7
176	18.7	0.0	38.8

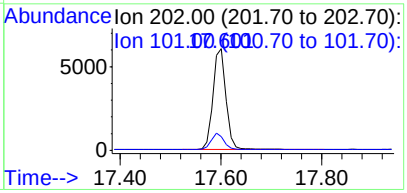


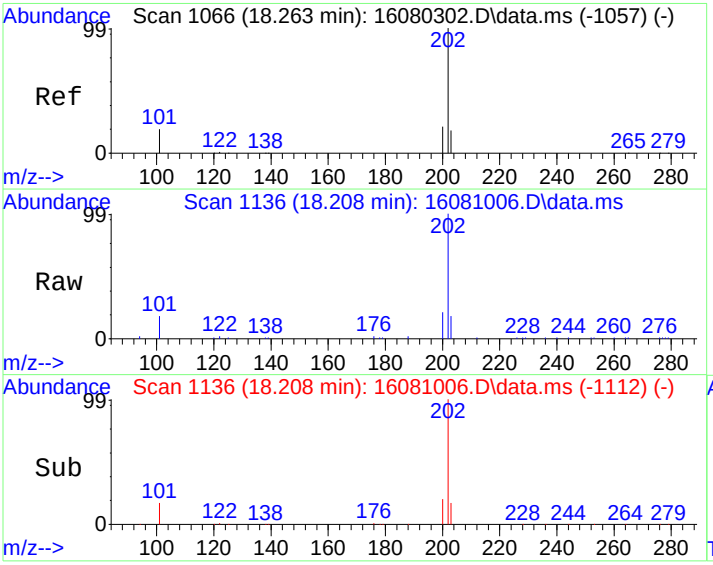


#14
Fluoranthene
Concen: 78.46 ug/kg
RT: 17.601 min Scan# 1073
Delta R.T. -0.011 min
Lab File: 16081006.D
Acq: 10 Aug 2016 9:55 am

Tgt Ion:202 Resp: 10711

Ion	Ratio	Lower	Upper
202	100		
101	12.8	0.0	37.2

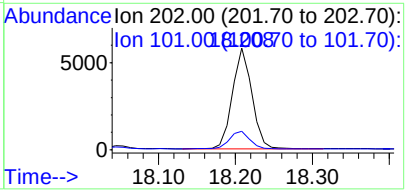


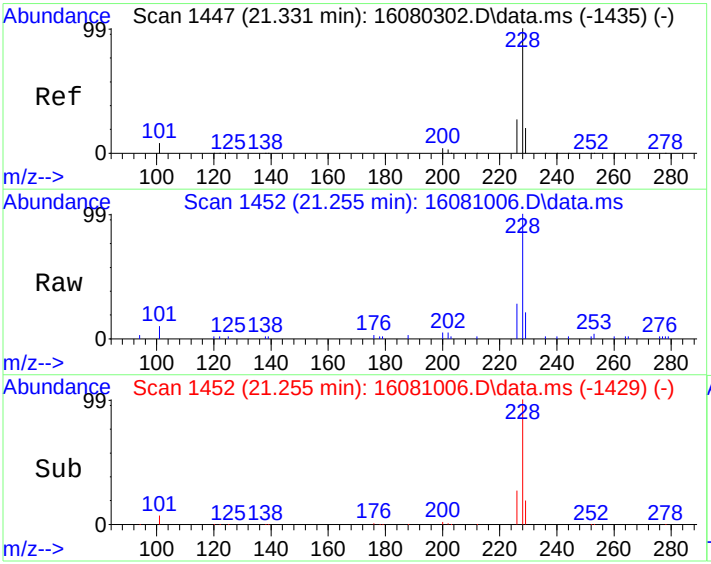


#16
Pyrene
Concen: 74.05 ug/kg
RT: 18.208 min Scan# 1136
Delta R.T. -0.020 min
Lab File: 16081006.D
Acq: 10 Aug 2016 9:55 am

Tgt Ion:202 Resp: 10107

Ion	Ratio	Lower	Upper
202	100		
101	17.4	0.0	38.0

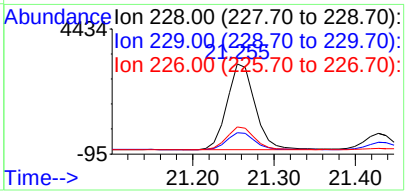


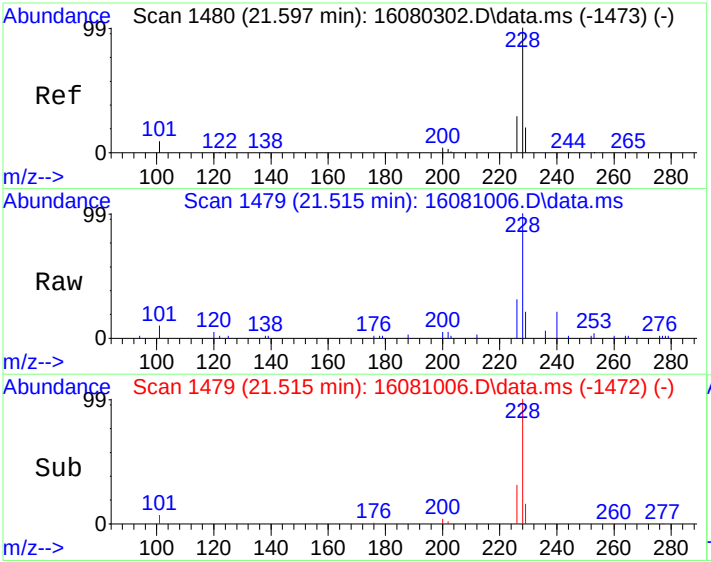


#18
Benzo[a]anthracene
Concen: 64.10 ug/kg
RT: 21.255 min Scan# 1452
Delta R.T. -0.030 min
Lab File: 16081006.D
Acq: 10 Aug 2016 9:55 am

Tgt Ion:228 Resp: 7464

Ion	Ratio	Lower	Upper
228	100		
229	19.6	0.0	39.9
226	26.8	6.7	46.7

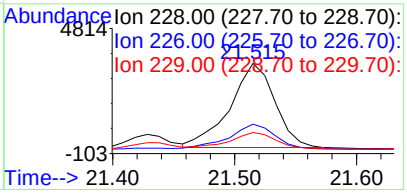


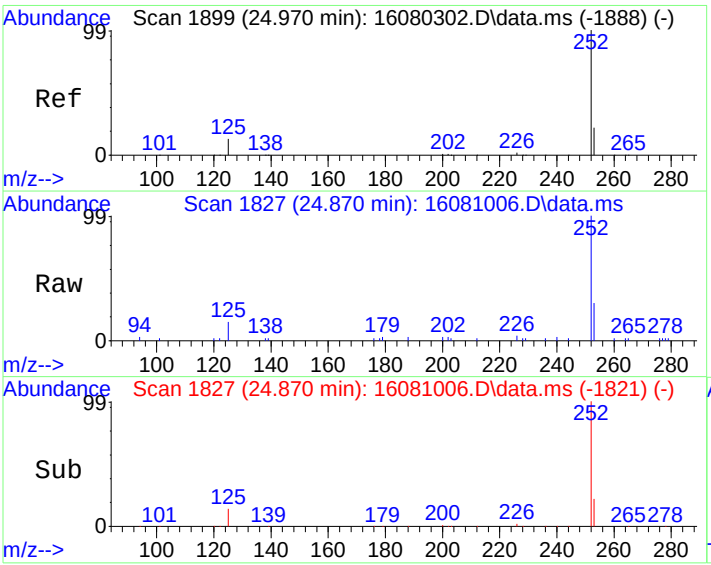


#19
Chrysene
Concen: 76.34 ug/kg
RT: 21.515 min Scan# 1479
Delta R.T. -0.030 min
Lab File: 16081006.D
Acq: 10 Aug 2016 9:55 am

Tgt Ion:228 Resp: 8414

Ion	Ratio	Lower	Upper
228	100		
226	29.4	9.3	49.3
229	19.2	0.0	39.8

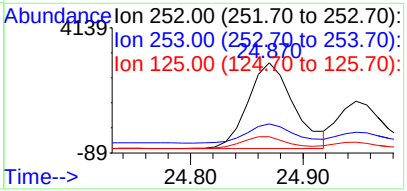


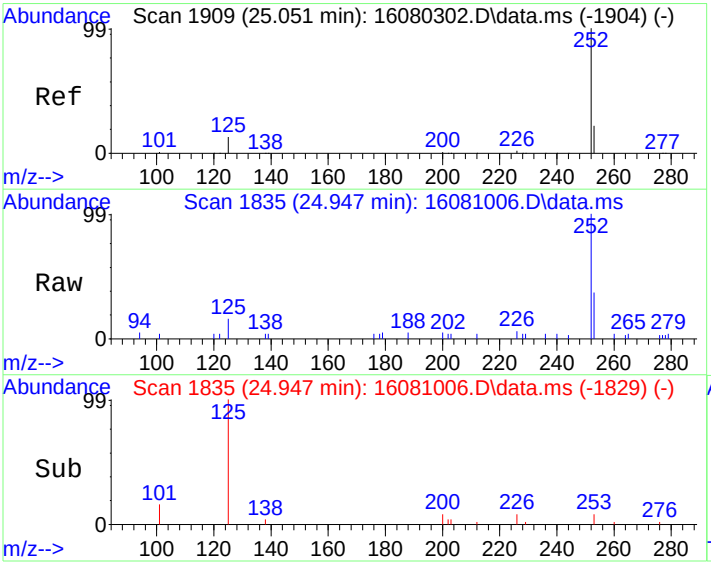


#21
Benzo[b]fluoranthene
Concen: 69.89 ug/kg
RT: 24.870 min Scan# 1827
Delta R.T. -0.040 min
Lab File: 16081006.D
Acq: 10 Aug 2016 9:55 am

Tgt Ion:252 Resp: 8162

Ion	Ratio	Lower	Upper
252	100		
253	22.3	1.9	41.9
125	13.6	0.0	33.2

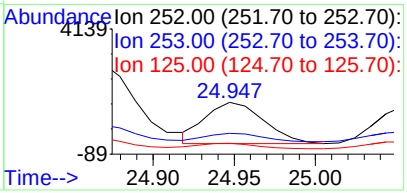


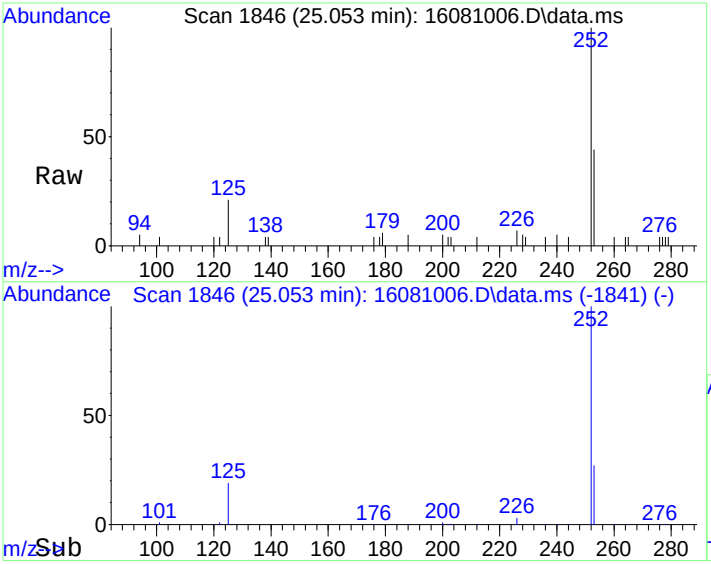


#22
Benzo[k]fluoranthene
Concen: 36.07 ug/kg
RT: 24.947 min Scan# 1835
Delta R.T. -0.040 min
Lab File: 16081006.D
Acq: 10 Aug 2016 9:55 am

Tgt Ion:252 Resp: 3509

Ion	Ratio	Lower	Upper
252	100		
253	20.3	2.1	42.1
125	13.3	0.0	33.9

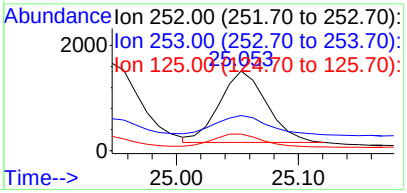


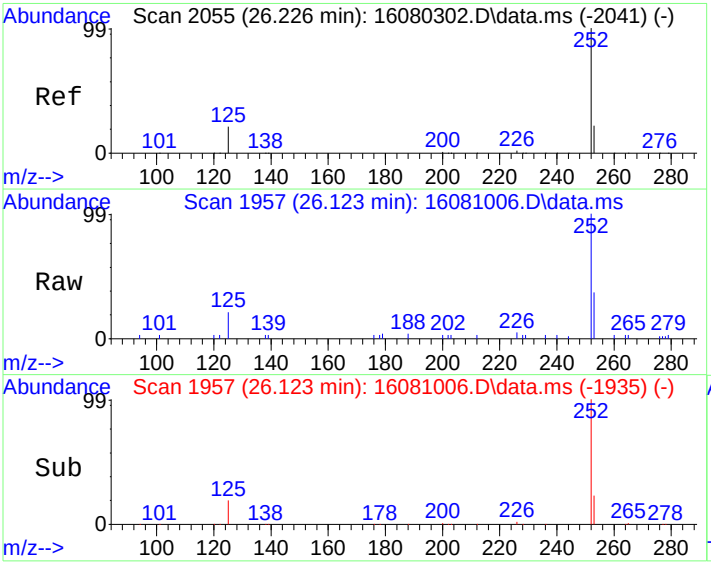


#23
Benzo(j)fluoranthene
Concen: 38.64 ug/kg
RT: 25.053 min Scan# 1846
Delta R.T. -0.040 min
Lab File: 16081006.D
Acq: 10 Aug 2016 9:55 am

Tgt Ion:252 Resp: 3647

Ion	Ratio	Lower	Upper
252	100		
253	28.9	1.9	41.9
125	18.7	0.0	39.4

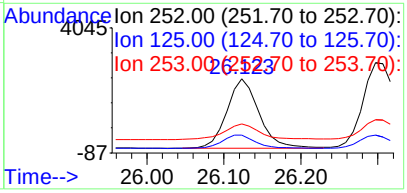


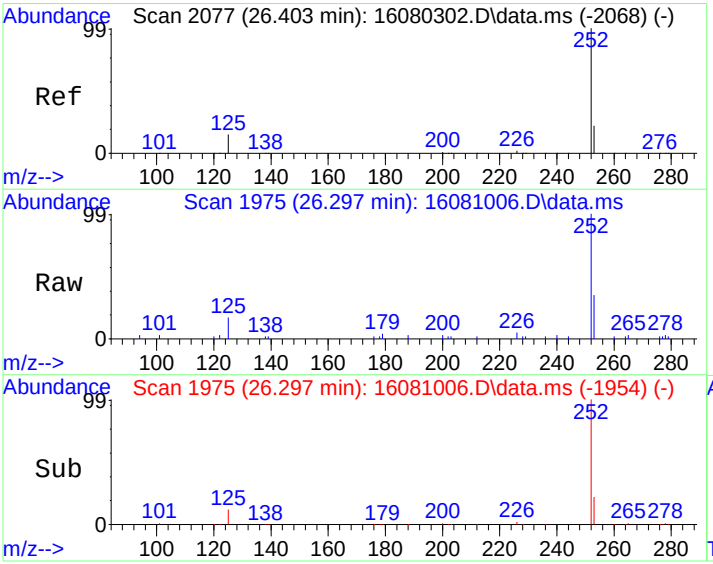


#24
Benzo(e)pyrene
Concen: 57.05 ug/kg
RT: 26.123 min Scan# 1957
Delta R.T. -0.040 min
Lab File: 16081006.D
Acq: 10 Aug 2016 9:55 am

Tgt Ion:252 Resp: 6630

Ion	Ratio	Lower	Upper
252	100		
125	20.1	0.5	40.5
253	26.4	2.1	42.1

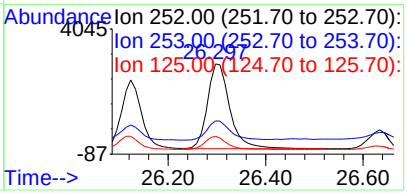


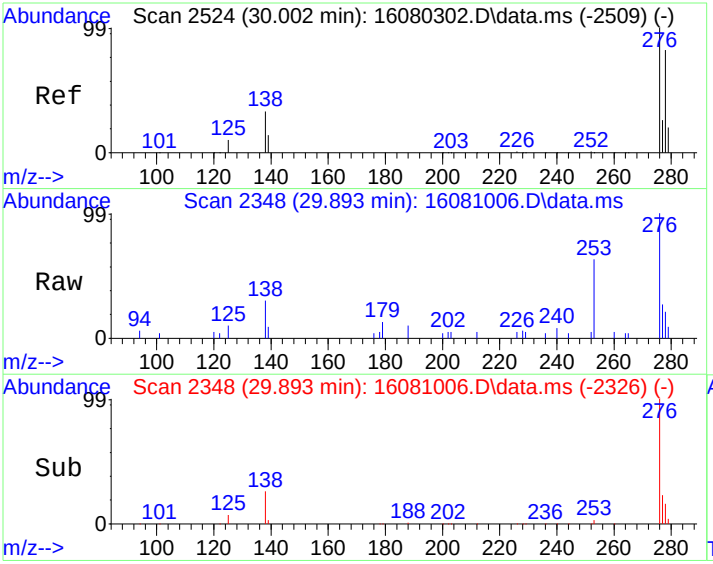


#25
Benzo[a]pyrene
Concen: 81.66 ug/kg
RT: 26.297 min Scan# 1975
Delta R.T. -0.049 min
Lab File: 16081006.D
Acq: 10 Aug 2016 9:55 am

Tgt Ion:252 Resp: 8925

Ion	Ratio	Lower	Upper
252	100		
253	22.9	1.9	41.9
125	15.7	0.0	33.5

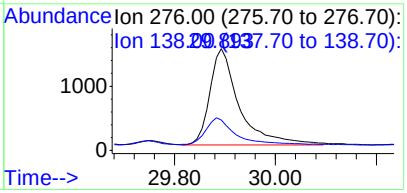


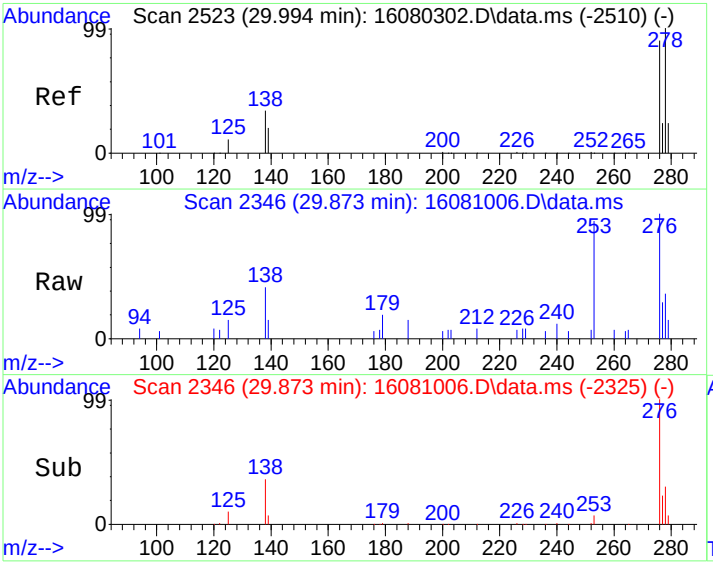


#26
Indeno[1,2,3-cd]pyrene
Concen: 45.11 ug/kg
RT: 29.893 min Scan# 2348
Delta R.T. -0.040 min
Lab File: 16081006.D
Acq: 10 Aug 2016 9:55 am

Tgt Ion:276 Resp: 6116

Ion	Ratio	Lower	Upper
276	100		
138	25.2	12.2	52.2

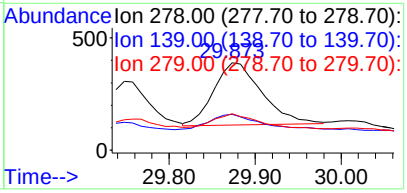


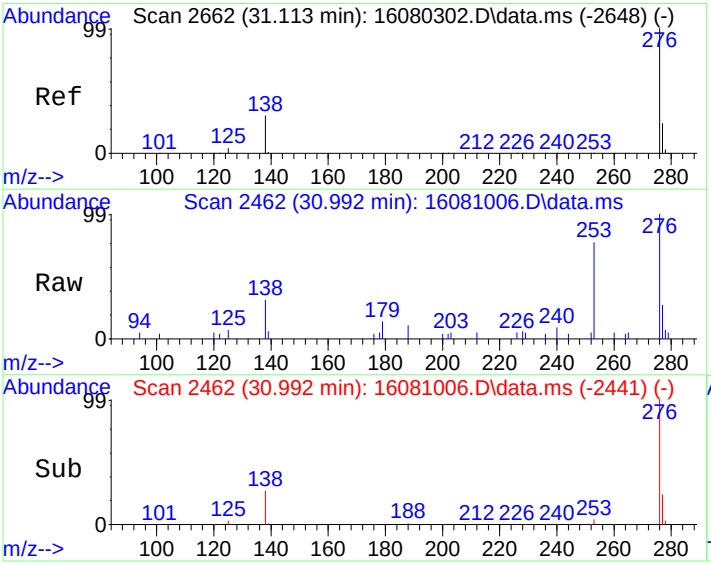


#27
Dibenz[a,h]anthracene
Concen: 9.94 ug/kg
RT: 29.873 min Scan# 2346
Delta R.T. -0.049 min
Lab File: 16081006.D
Acq: 10 Aug 2016 9:55 am

Tgt Ion:278 Resp: 1081

Ion	Ratio	Lower	Upper
278	100		
139	24.1	0.2	40.2
279	24.8	3.9	43.9

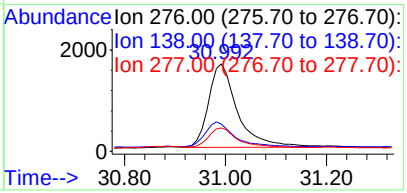




#28
Benzo[g,h,i]perylene
Concen: 54.87 ug/kg
RT: 30.992 min Scan# 2462
Delta R.T. -0.049 min
Lab File: 16081006.D
Acq: 10 Aug 2016 9:55 am

Tgt Ion:276 Resp: 6604

Ion	Ratio	Lower	Upper
276	100		
138	27.1	6.9	46.9
277	23.4	3.9	43.9



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160810\
Data File : 16081007.D
Acq On : 10 Aug 2016 10:35 am
Operator :
Sample : 1607337-11A
Misc : SAMP
ALS Vial : 7 Sample Multiplier: 10

Quant Time: Aug 11 08:46:51 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	10.988	136	316446	4000.00	ug/kg	120
6) Acenaphthene-d10	13.449	164	218074	4000.00	ug/kg	134
11) Phenanthrene-d10	15.548	188	486681	4000.00	ug/kg	95
17) Chrysene-d12	21.429	240	458515	4000.00	ug/kg	99
20) Perylene-d12	26.635	264	448330	4000.00	ug/kg	107

System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.378	172	5806	82.47	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 2.06%#			
15) 4-Terphenyl-d14	18.103	244	7154	83.61	ug/kg	-0.02
Spiked Amount 4000.000	Range 50 - 135		Recovery = 2.09%#			

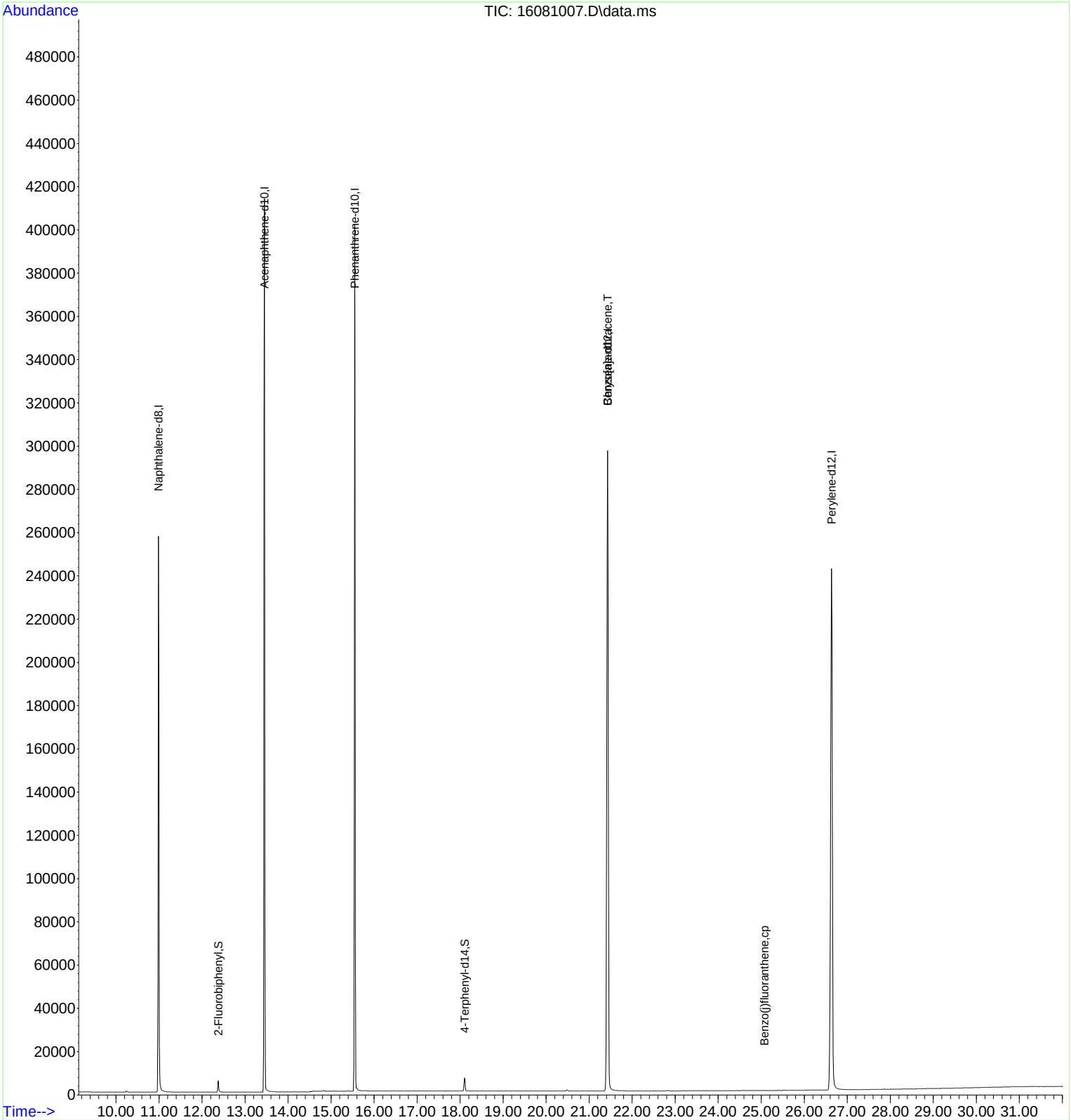
Target Compounds						Qvalue
18) Benzo[a]anthracene	21.429	228	1245	10.78	ug/kg	71
23) Benzo(j)fluoranthene	25.082	252	6	0.07	ug/kg#	56

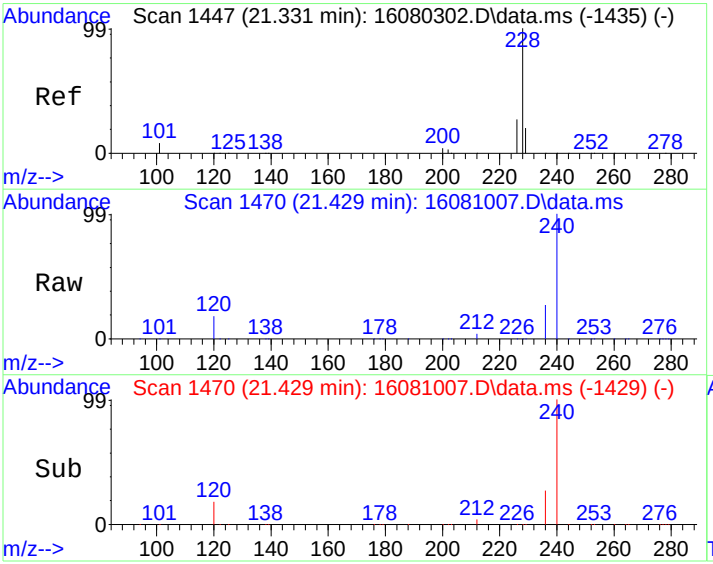
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160810\
Data File : 16081007.D
Acq On : 10 Aug 2016 10:35 am
Operator :
Sample : 1607337-11A
Misc : SAMP
ALS Vial : 7 Sample Multiplier: 10

Quant Time: Aug 11 08:46:51 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration

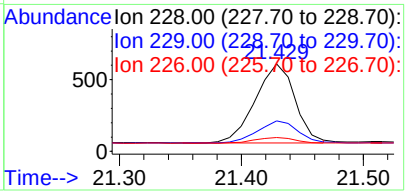


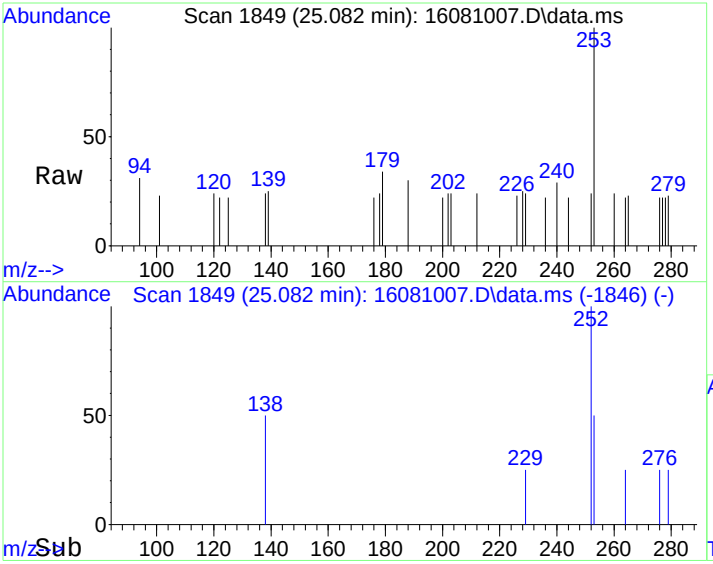


#18
Benzo[a]anthracene
Concen: 10.78 ug/kg
RT: 21.429 min Scan# 1470
Delta R.T. 0.144 min
Lab File: 16081007.D
Acq: 10 Aug 2016 10:35 am

Tgt Ion:228 Resp: 1245

Ion	Ratio	Lower	Upper
228	100		
229	28.3	0.0	39.9
226	7.3	6.7	46.7

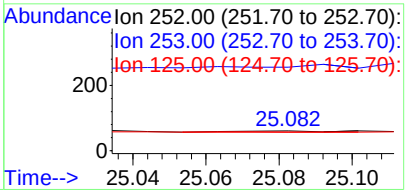




#23
Benzo(j)fluoranthene
Concen: 0.07 ug/kg
RT: 25.082 min Scan# 1849
Delta R.T. -0.010 min
Lab File: 16081007.D
Acq: 10 Aug 2016 10:35 am

Tgt Ion:252 Resp: 6

Ion	Ratio	Lower	Upper
252	100		
253	0.0	1.9	41.9#
125	0.0	0.0	39.4



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160810\
Data File : 16081008.D
Acq On : 10 Aug 2016 11:14 am
Operator :
Sample : 1607337-12A
Misc : SAMP
ALS Vial : 8 Sample Multiplier: 10

Quant Time: Aug 11 08:46:55 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	10.986	136	321735	4000.00	ug/kg	122
6) Acenaphthene-d10	13.447	164	239665	4000.00	ug/kg	148
11) Phenanthrene-d10	15.549	188	508787	4000.00	ug/kg	99
17) Chrysene-d12	21.430	240	459261	4000.00	ug/kg	99
20) Perylene-d12	26.636	264	452277	4000.00	ug/kg	108

System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.376	172	5828	81.43	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 2.04%#			
15) 4-Terphenyl-d14	18.104	244	6631	74.13	ug/kg	-0.02
Spiked Amount 4000.000	Range 50 - 135		Recovery = 1.85%#			

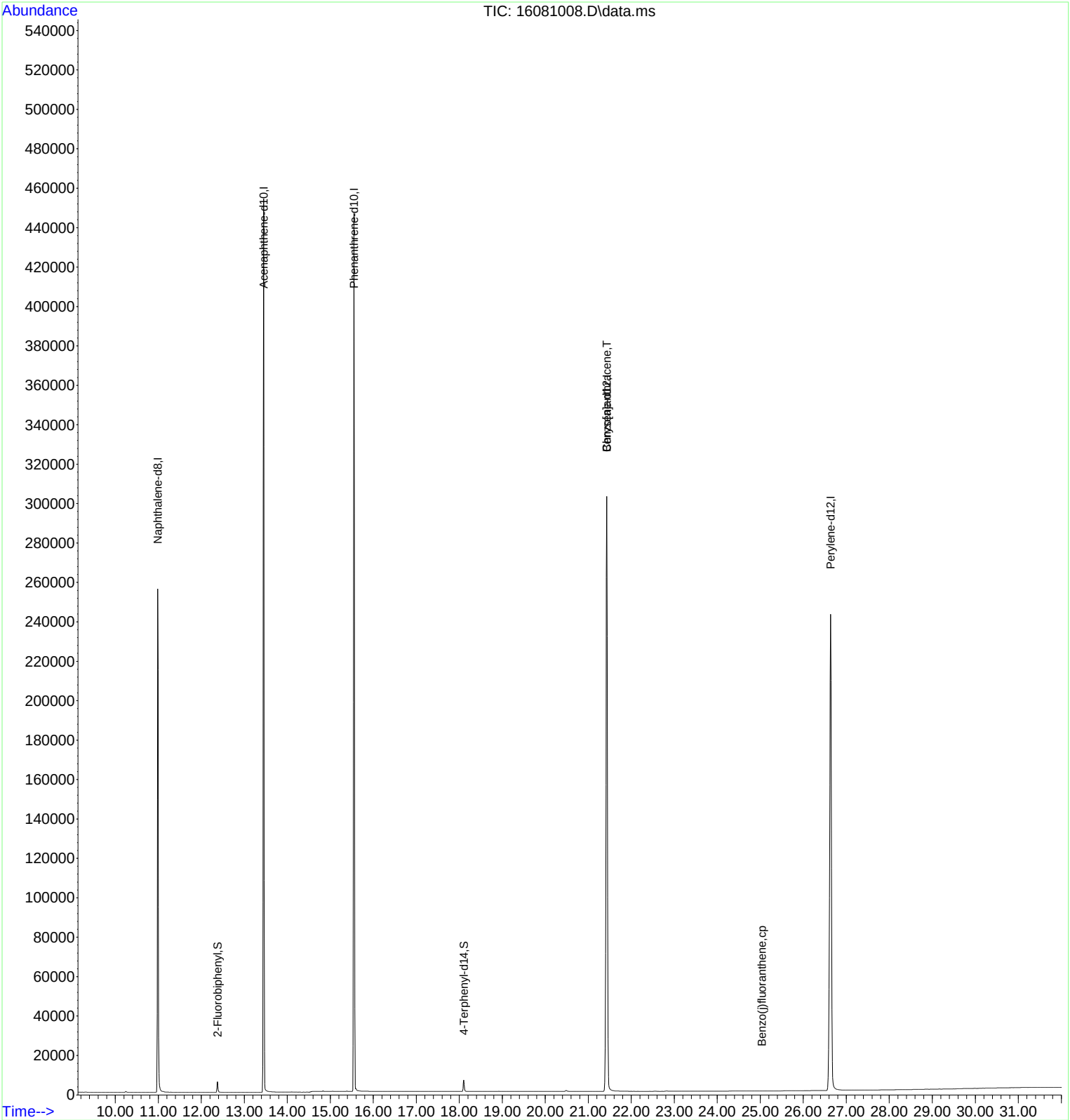
Target Compounds						Qvalue
18) Benzo[a]anthracene	21.430	228	1247	10.78	ug/kg#	70
23) Benzo(j)fluoranthene	25.035	252	2	0.02	ug/kg#	1

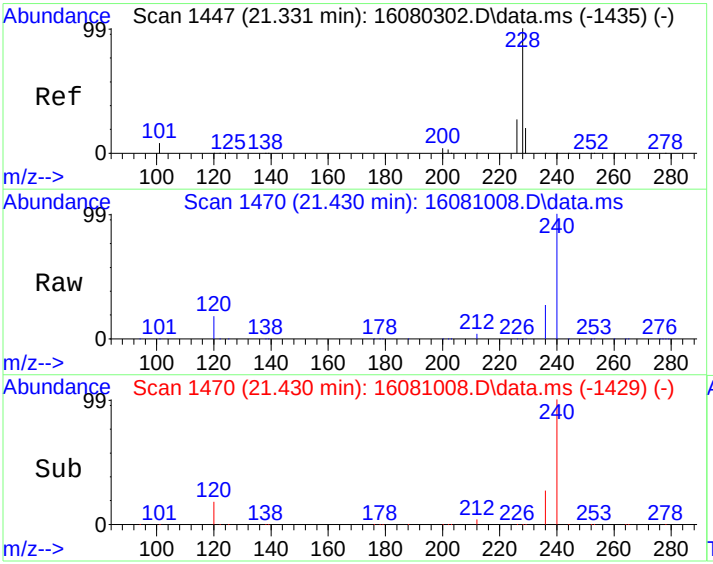
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160810\
Data File : 16081008.D
Acq On : 10 Aug 2016 11:14 am
Operator :
Sample : 1607337-12A
Misc : SAMP
ALS Vial : 8 Sample Multiplier: 10

Quant Time: Aug 11 08:46:55 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration

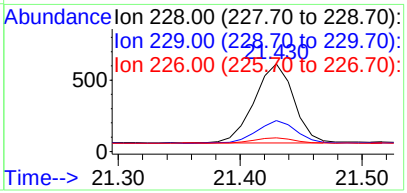


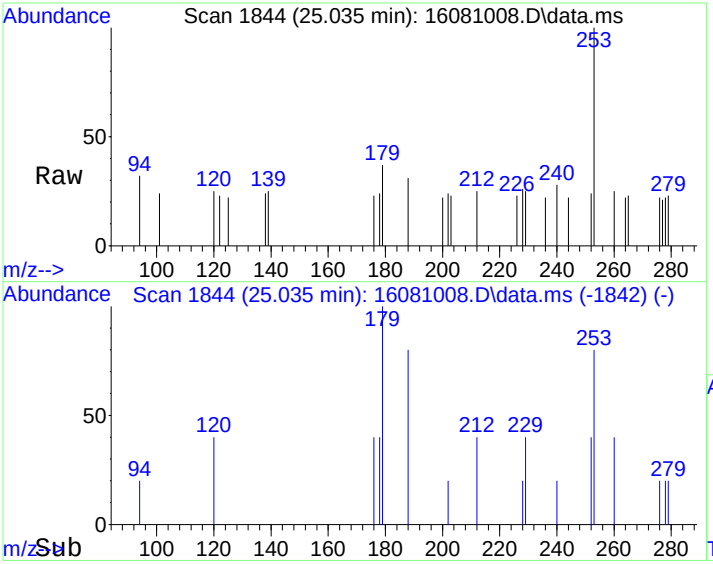


#18
Benzo[a]anthracene
Concen: 10.78 ug/kg
RT: 21.430 min Scan# 1470
Delta R.T. 0.145 min
Lab File: 16081008.D
Acq: 10 Aug 2016 11:14 am

Tgt Ion:228 Resp: 1247

Ion	Ratio	Lower	Upper
228	100		
229	28.5	0.0	39.9
226	6.5	6.7	46.7#

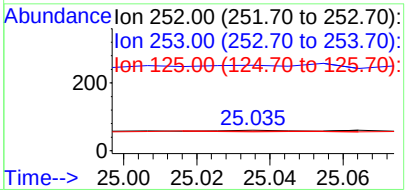




#23
Benzo(j)fluoranthene
Concen: 0.02 ug/kg
RT: 25.035 min Scan# 1844
Delta R.T. -0.057 min
Lab File: 16081008.D
Acq: 10 Aug 2016 11:14 am

Tgt Ion:252 Resp: 2

Ion	Ratio	Lower	Upper
252	100		
253	950.0	1.9	41.9#
125	150.0	0.0	39.4#



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160810\
Data File : 16081009.D
Acq On : 10 Aug 2016 11:54 am
Operator :
Sample : 1607337-14A
Misc : SAMP
ALS Vial : 9 Sample Multiplier: 10

Quant Time: Aug 11 08:46:59 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	10.987	136	315791	4000.00	ug/kg	119
6) Acenaphthene-d10	13.448	164	228348	4000.00	ug/kg	141
11) Phenanthrene-d10	15.549	188	495600	4000.00	ug/kg	96
17) Chrysene-d12	21.430	240	449279	4000.00	ug/kg	97
20) Perylene-d12	26.636	264	442306	4000.00	ug/kg	105

System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.377	172	5816	82.79	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 2.07%#			
15) 4-Terphenyl-d14	18.104	244	6691	76.79	ug/kg	-0.02
Spiked Amount 4000.000	Range 50 - 135		Recovery = 1.92%#			

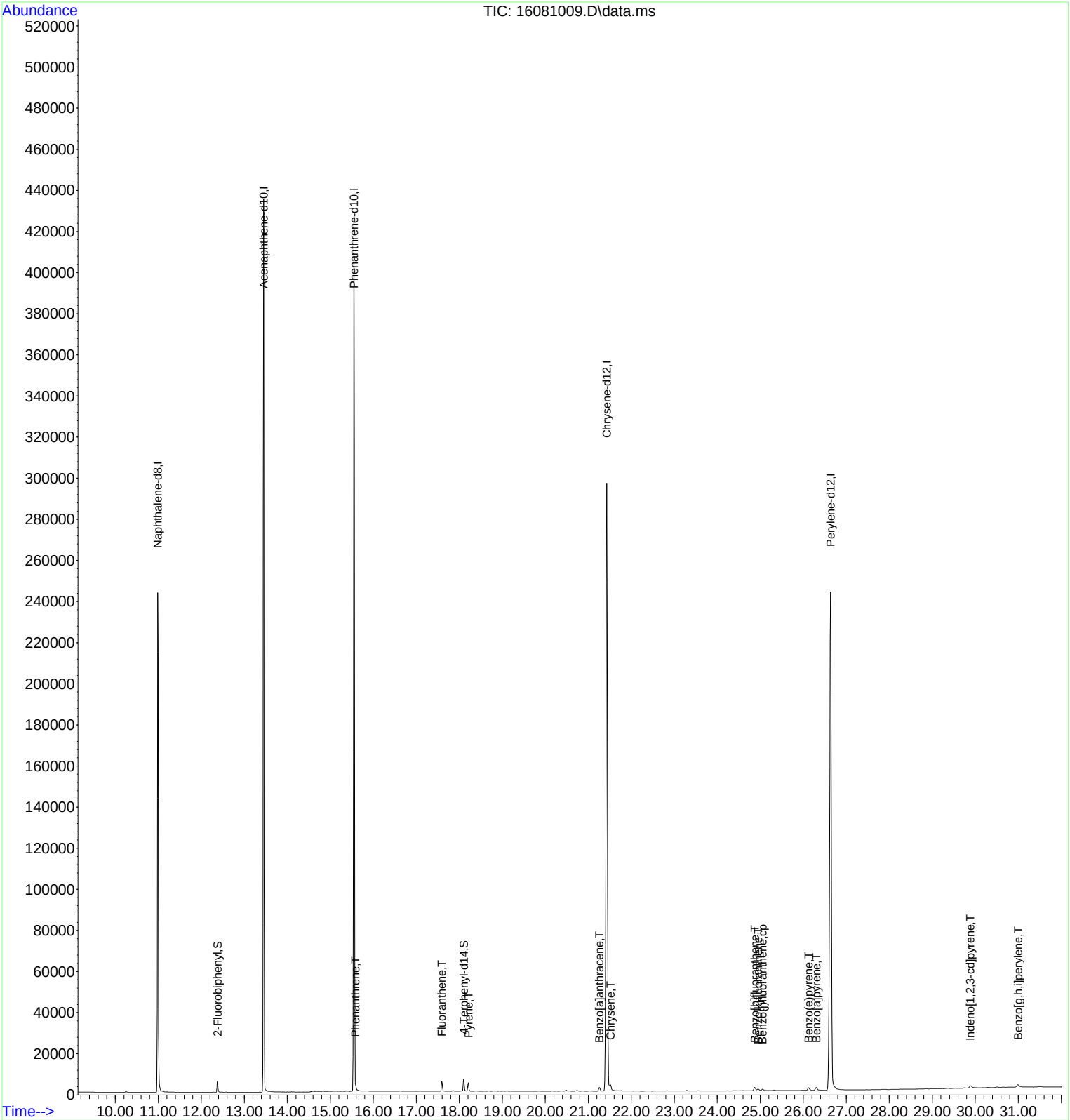
Target Compounds						Qvalue
12) Phenanthrene	15.588	178	2023	13.30	ug/kg	99
14) Fluoranthene	17.593	202	5346	39.74	ug/kg	98
16) Pyrene	18.210	202	4798	35.67	ug/kg	96
18) Benzo[a]anthracene	21.256	228	2739	24.21	ug/kg	99
19) Chrysene	21.517	228	3298	30.79	ug/kg	100
21) Benzo[b]fluoranthene	24.871	252	3387	30.20	ug/kg	99
22) Benzo[k]fluoranthene	24.949	252	1432	15.33	ug/kg	97
23) Benzo(j)fluoranthene	25.055	252	1396	15.40	ug/kg	92
24) Benzo(e)pyrene	26.125	252	2826	25.32	ug/kg	90
25) Benzo[a]pyrene	26.298	252	3410	32.49	ug/kg	97
26) Indeno[1,2,3-cd]pyrene	29.894	276	2683	20.61	ug/kg	88
28) Benzo[g,h,i]perylene	30.993	276	3069	26.56	ug/kg	99

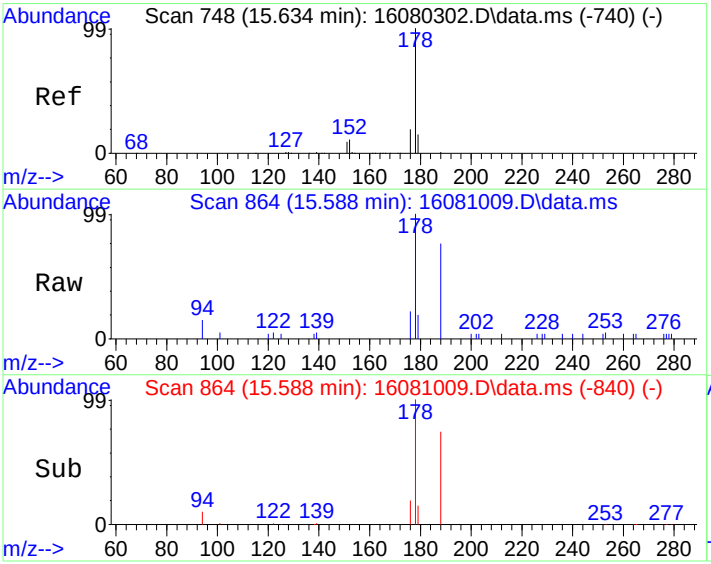
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160810\
Data File : 16081009.D
Acq On : 10 Aug 2016 11:54 am
Operator :
Sample : 1607337-14A
Misc : SAMP
ALS Vial : 9 Sample Multiplier: 10

Quant Time: Aug 11 08:46:59 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration

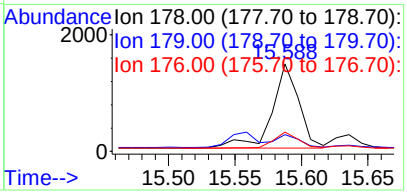


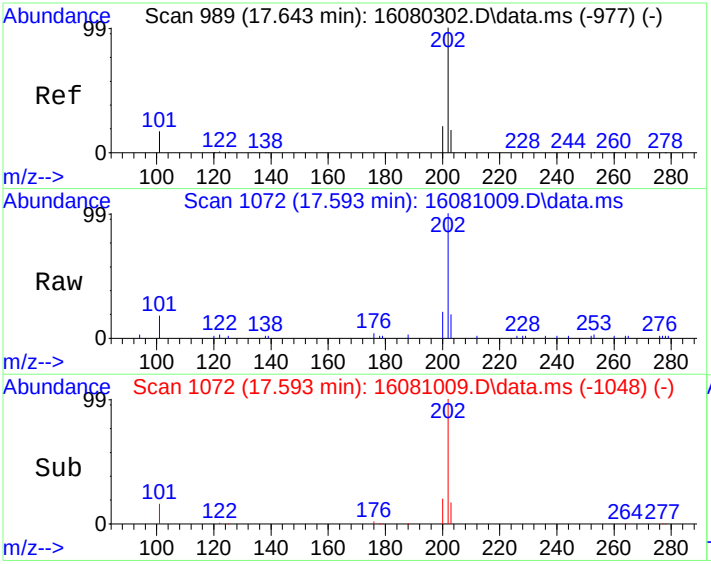


#12
Phenanthrene
Concen: 13.30 ug/kg
RT: 15.588 min Scan# 864
Delta R.T. -0.018 min
Lab File: 16081009.D
Acq: 10 Aug 2016 11:54 am

Tgt Ion:178 Resp: 2023

Ion	Ratio	Lower	Upper
178	100		
179	15.1	0.0	35.7
176	18.9	0.0	38.8

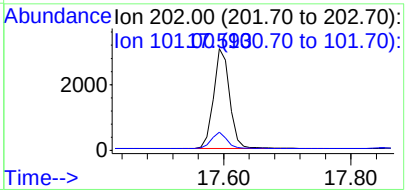


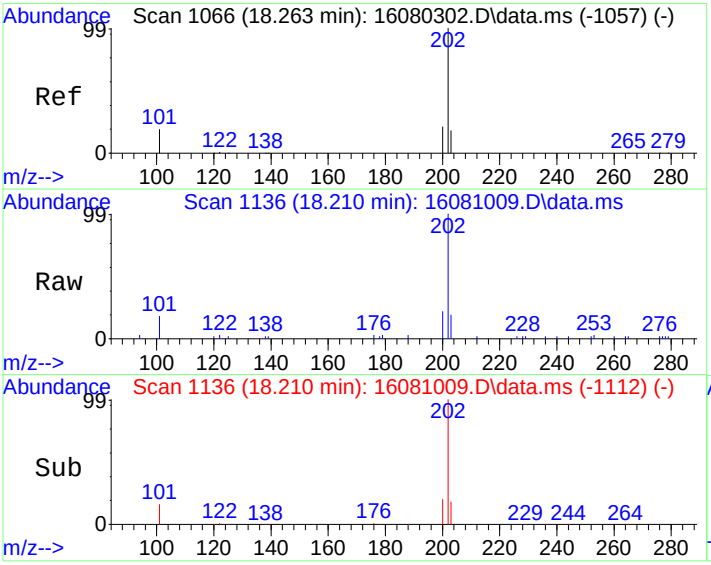


#14
Fluoranthene
Concen: 39.74 ug/kg
RT: 17.593 min Scan# 1072
Delta R.T. -0.019 min
Lab File: 16081009.D
Acq: 10 Aug 2016 11:54 am

Tgt Ion:202 Resp: 5346

Ion	Ratio	Lower	Upper
202	100		
101	16.2	0.0	37.2

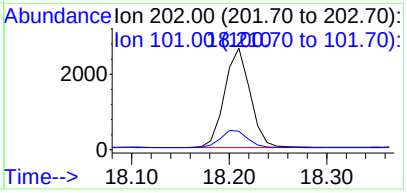


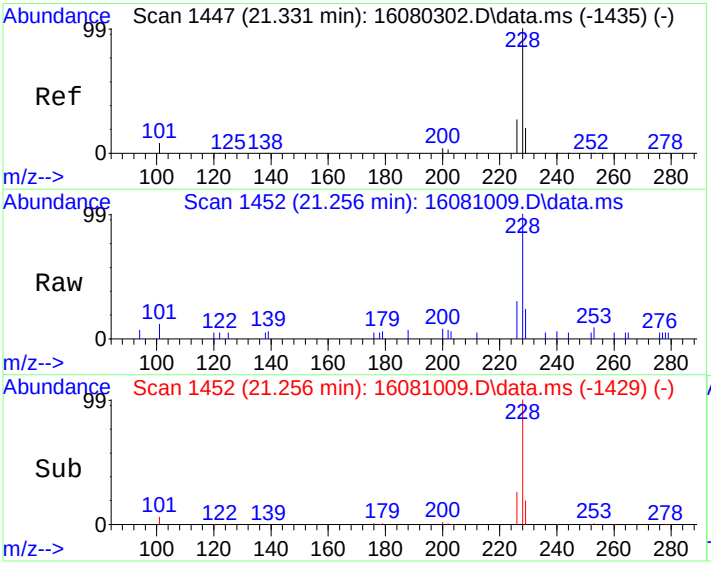


#16
Pyrene
Concen: 35.67 ug/kg
RT: 18.210 min Scan# 1136
Delta R.T. -0.019 min
Lab File: 16081009.D
Acq: 10 Aug 2016 11:54 am

Tgt Ion:202 Resp: 4798

Ion	Ratio	Lower	Upper
202	100		
101	16.3	0.0	38.0

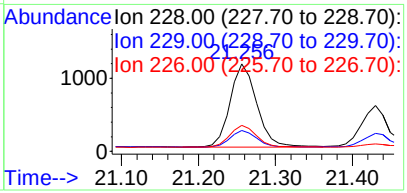


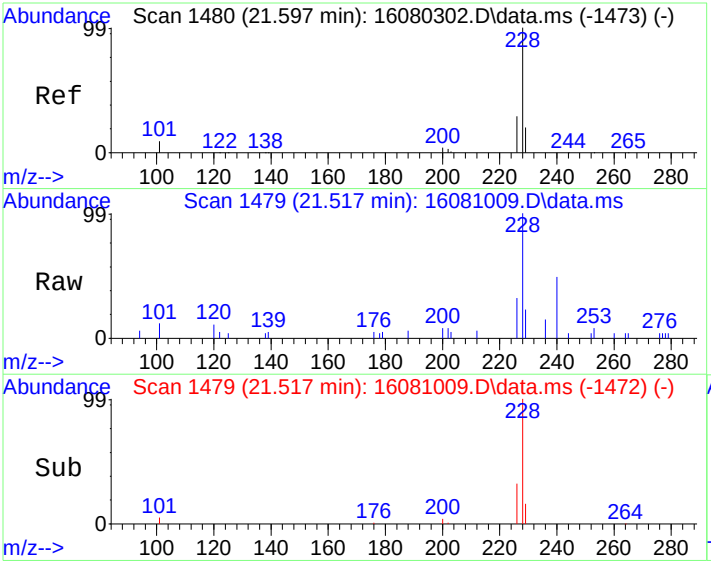


#18
Benzo[a]anthracene
Concen: 24.21 ug/kg
RT: 21.256 min Scan# 1452
Delta R.T. -0.029 min
Lab File: 16081009.D
Acq: 10 Aug 2016 11:54 am

Tgt Ion:228 Resp: 2739

Ion	Ratio	Lower	Upper
228	100		
229	19.8	0.0	39.9
226	26.3	6.7	46.7

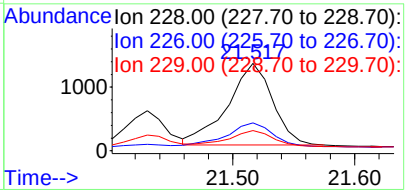


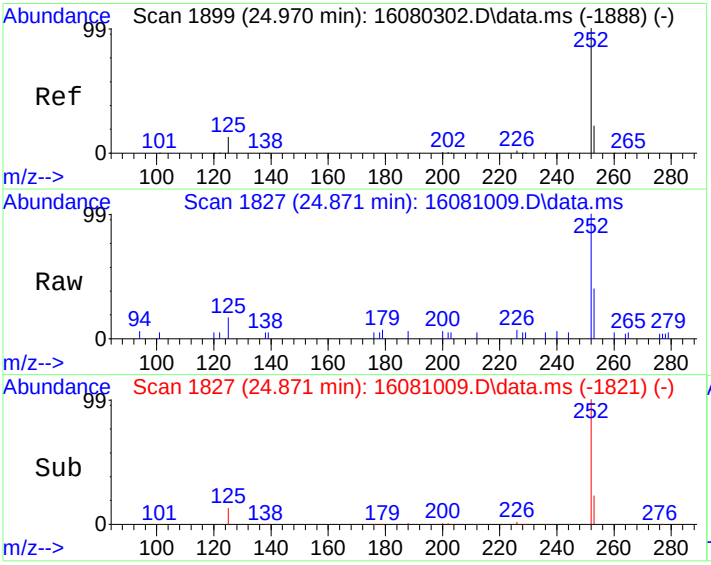


#19
Chrysene
Concen: 30.79 ug/kg
RT: 21.517 min Scan# 1479
Delta R.T. -0.029 min
Lab File: 16081009.D
Acq: 10 Aug 2016 11:54 am

Tgt Ion:228 Resp: 3298

Ion	Ratio	Lower	Upper
228	100		
226	29.0	9.3	49.3
229	19.9	0.0	39.8

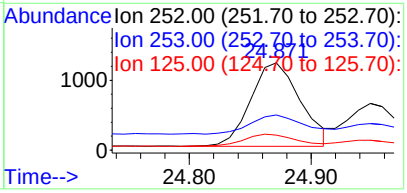


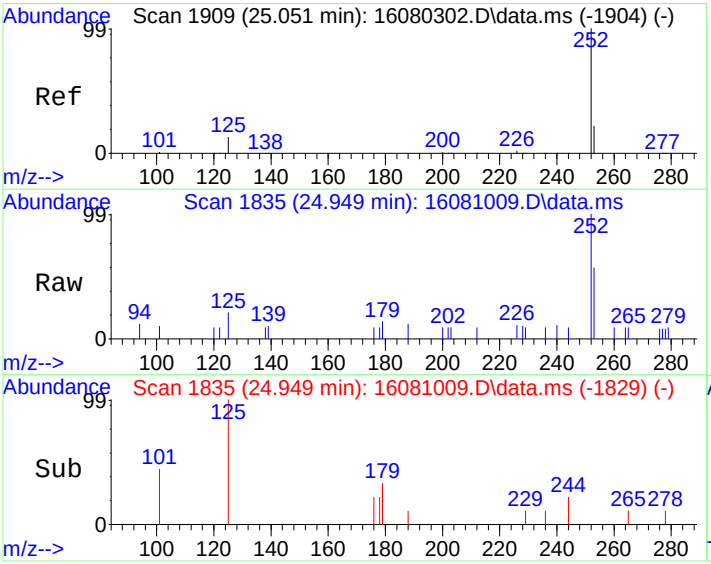


#21
Benzo[b]fluoranthene
Concen: 30.20 ug/kg
RT: 24.871 min Scan# 1827
Delta R.T. -0.038 min
Lab File: 16081009.D
Acq: 10 Aug 2016 11:54 am

Tgt Ion:252 Resp: 3387

Ion	Ratio	Lower	Upper
252	100		
253	22.7	1.9	41.9
125	13.4	0.0	33.2

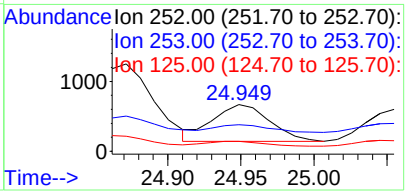


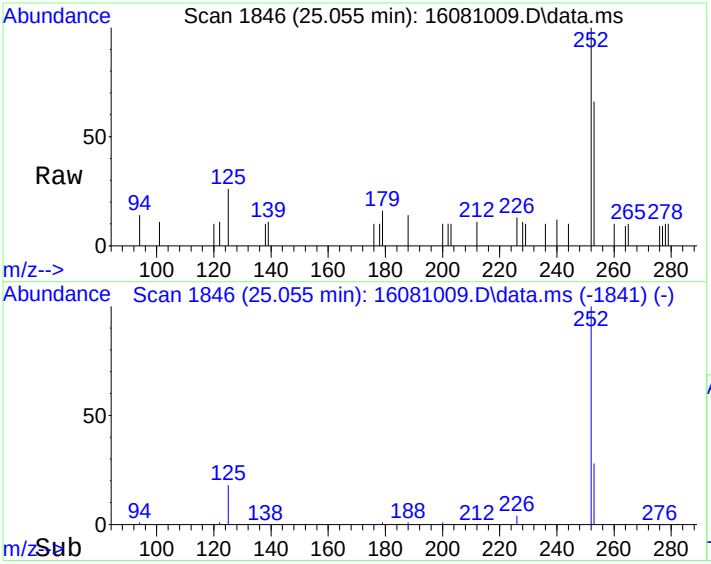


#22
Benzo[k]fluoranthene
Concen: 15.33 ug/kg
RT: 24.949 min Scan# 1835
Delta R.T. -0.038 min
Lab File: 16081009.D
Acq: 10 Aug 2016 11:54 am

Tgt Ion:252 Resp: 1432

Ion	Ratio	Lower	Upper
252	100		
253	21.0	2.1	42.1
125	12.8	0.0	33.9

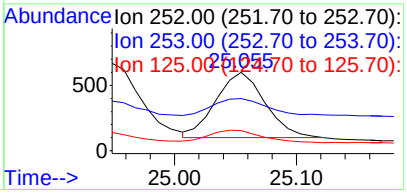


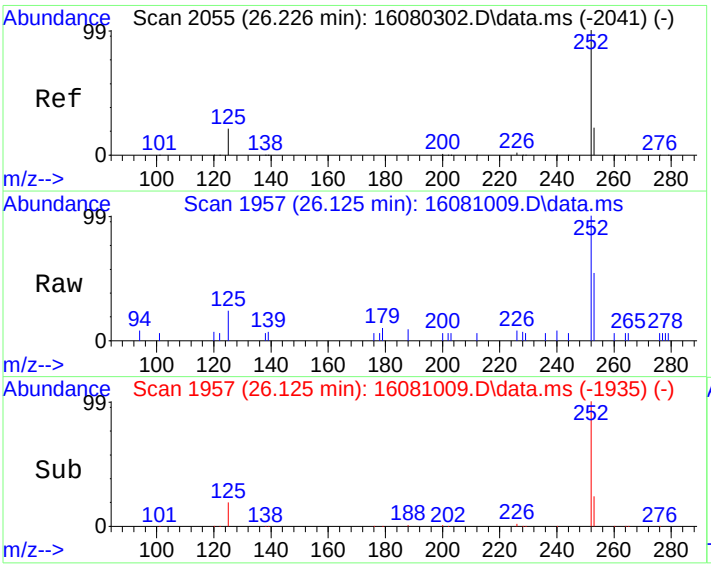


#23
Benzo(j)fluoranthene
Concen: 15.40 ug/kg
RT: 25.055 min Scan# 1846
Delta R.T. -0.038 min
Lab File: 16081009.D
Acq: 10 Aug 2016 11:54 am

Tgt Ion:252 Resp: 1396

Ion	Ratio	Lower	Upper
252	100		
253	27.8	1.9	41.9
125	20.6	0.0	39.4

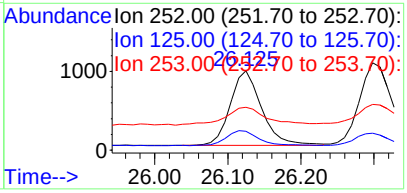


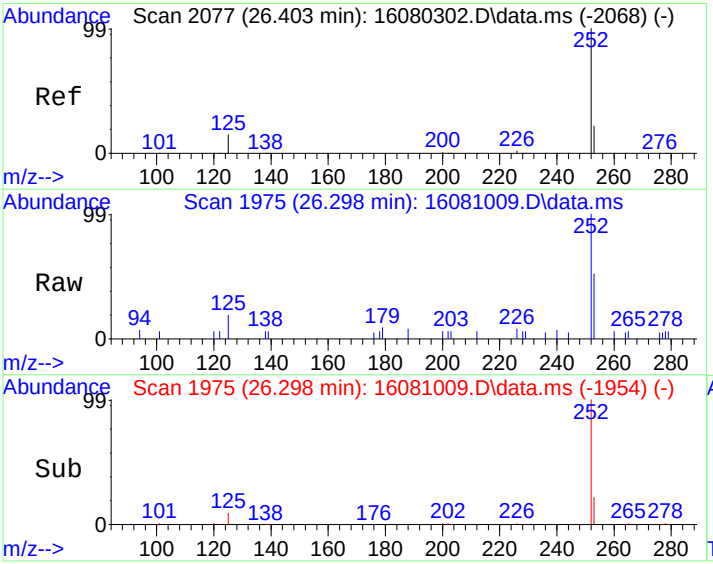


#24
Benzo(e)pyrene
Concen: 25.32 ug/kg
RT: 26.125 min Scan# 1957
Delta R.T. -0.038 min
Lab File: 16081009.D
Acq: 10 Aug 2016 11:54 am

Tgt Ion:252 Resp: 2826

Ion	Ratio	Lower	Upper
252	100		
125	20.7	0.5	40.5
253	31.0	2.1	42.1

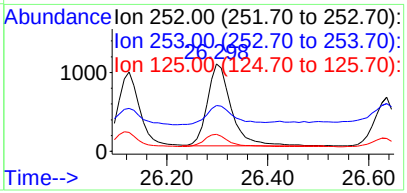


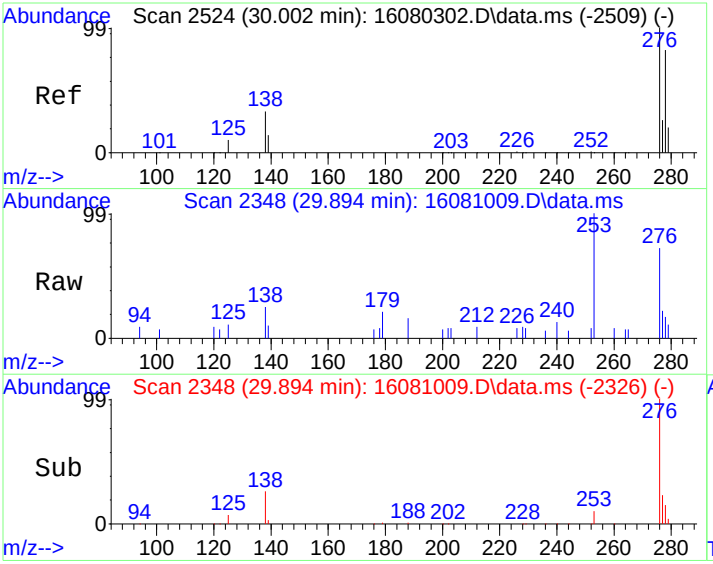


#25
Benzo[a]pyrene
Concen: 32.49 ug/kg
RT: 26.298 min Scan# 1975
Delta R.T. -0.048 min
Lab File: 16081009.D
Acq: 10 Aug 2016 11:54 am

Tgt Ion:252 Resp: 3410

Ion	Ratio	Lower	Upper
252	100		
253	23.0	1.9	41.9
125	14.7	0.0	33.5

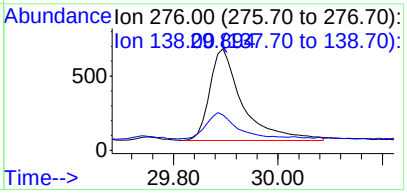


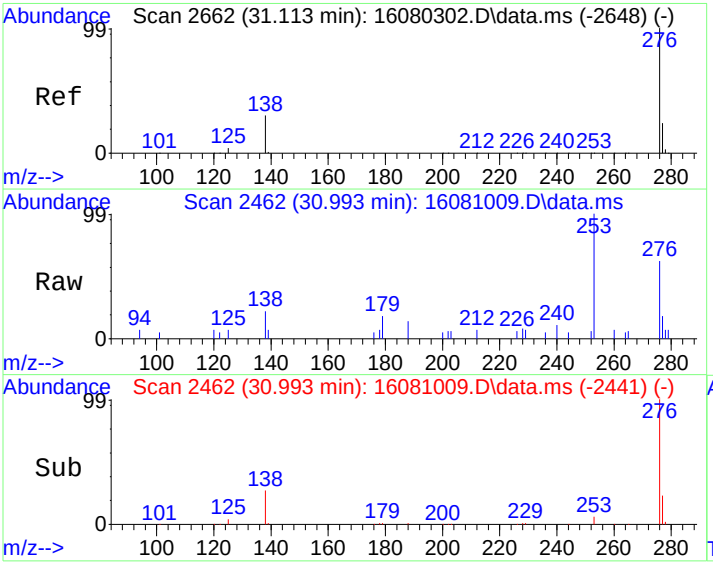


#26
Indeno[1,2,3-cd]pyrene
Concen: 20.61 ug/kg
RT: 29.894 min Scan# 2348
Delta R.T. -0.038 min
Lab File: 16081009.D
Acq: 10 Aug 2016 11:54 am

Tgt Ion:276 Resp: 2683

Ion	Ratio	Lower	Upper
276	100		
138	25.7	12.2	52.2

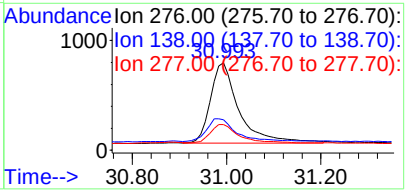




#28
Benzo[g,h,i]perylene
Concen: 26.56 ug/kg
RT: 30.993 min Scan# 2462
Delta R.T. -0.048 min
Lab File: 16081009.D
Acq: 10 Aug 2016 11:54 am

Tgt Ion:276 Resp: 3069

Ion	Ratio	Lower	Upper
276	100		
138	26.8	6.9	46.9
277	23.0	3.9	43.9



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160810\
Data File : 16081010.D
Acq On : 10 Aug 2016 12:34 pm
Operator :
Sample : 1607337-15A
Misc : SAMP
ALS Vial : 10 Sample Multiplier: 10

Quant Time: Aug 11 08:47:07 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	10.990	136	322242	4000.00	ug/kg	122
6) Acenaphthene-d10	13.451	164	230168	4000.00	ug/kg	142
11) Phenanthrene-d10	15.549	188	496981	4000.00	ug/kg	97
17) Chrysene-d12	21.430	240	459558	4000.00	ug/kg	99
20) Perylene-d12	26.636	264	453769	4000.00	ug/kg	108

System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.373	172	5688	79.34	ug/kg	-0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery = 1.98%#			
15) 4-Terphenyl-d14	18.104	244	6736	77.09	ug/kg	-0.02
Spiked Amount 4000.000	Range 50 - 135		Recovery = 1.93%#			

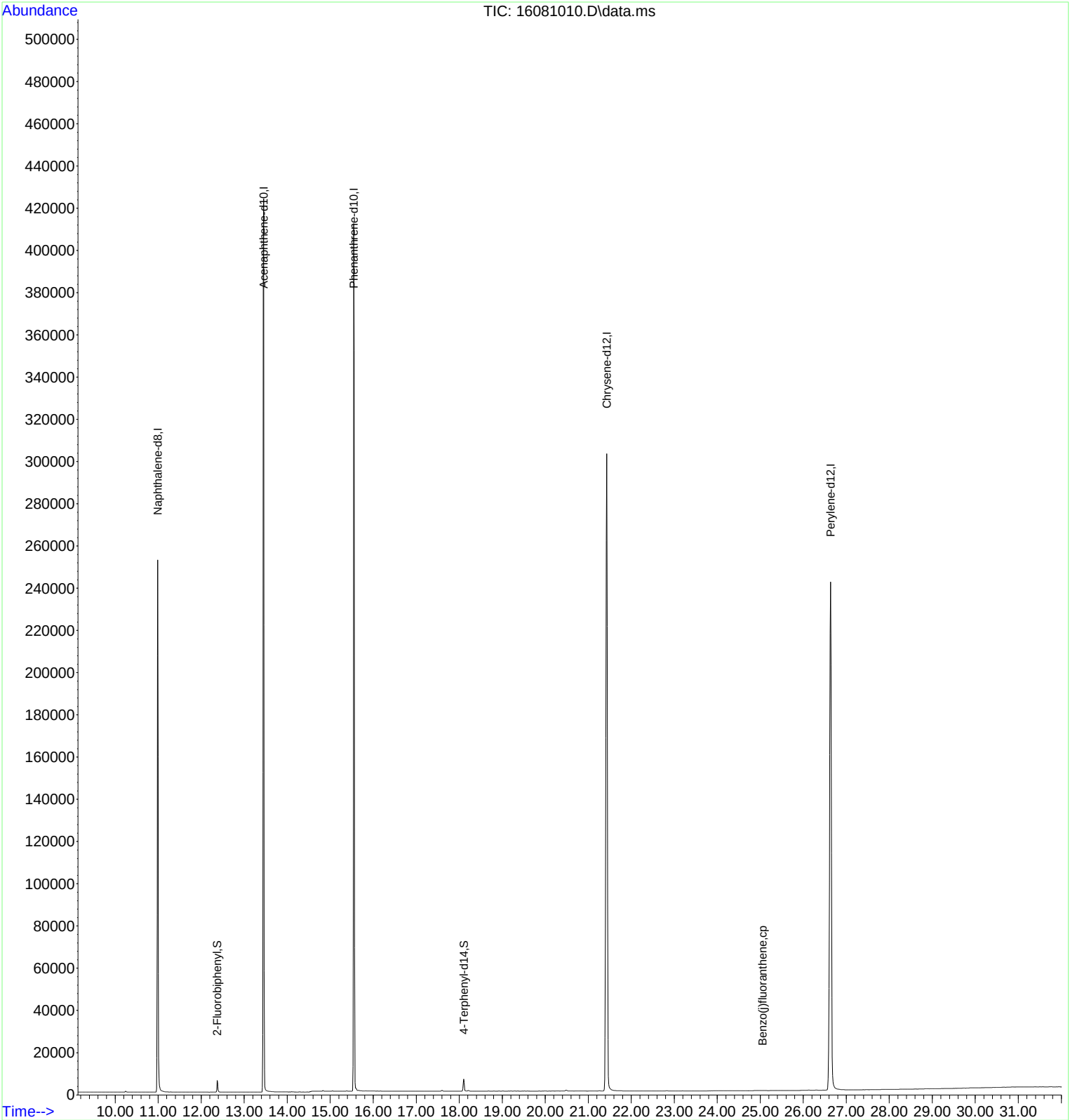
Target Compounds						Qvalue
23) Benzo(j)fluoranthene	25.055	252	102	1.10	ug/kg	91

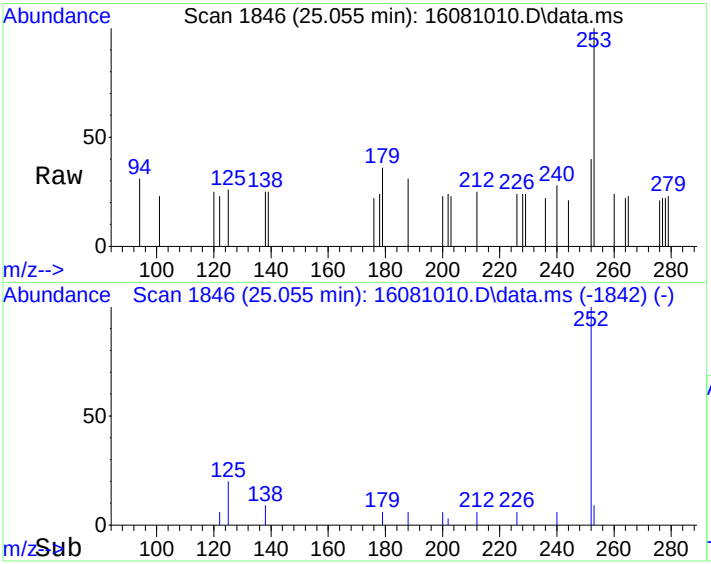
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160810\
Data File : 16081010.D
Acq On : 10 Aug 2016 12:34 pm
Operator :
Sample : 1607337-15A
Misc : SAMP
ALS Vial : 10 Sample Multiplier: 10

Quant Time: Aug 11 08:47:07 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration

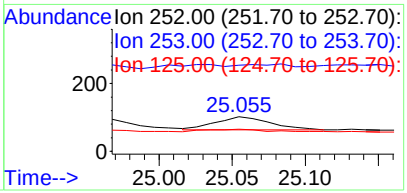




#23
Benzo(j)fluoranthene
Concen: 1.10 ug/kg
RT: 25.055 min Scan# 1846
Delta R.T. -0.038 min
Lab File: 16081010.D
Acq: 10 Aug 2016 12:34 pm

Tgt Ion:252 Resp: 102

Ion	Ratio	Lower	Upper
252	100		
253	29.4	1.9	41.9
125	18.6	0.0	39.4



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160810\
Data File : 16081011.D
Acq On : 10 Aug 2016 1:14 pm
Operator :
Sample : 1607337-16A
Misc : SAMP
ALS Vial : 11 Sample Multiplier: 10

Quant Time: Aug 11 08:47:10 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	10.990	136	310968	4000.00	ug/kg	117
6) Acenaphthene-d10	13.451	164	223986	4000.00	ug/kg	138
11) Phenanthrene-d10	15.548	188	494091	4000.00	ug/kg	96
17) Chrysene-d12	21.429	240	452314	4000.00	ug/kg	98
20) Perylene-d12	26.635	264	445039	4000.00	ug/kg	106

System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.373	172	5619	81.22	ug/kg	-0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery = 2.03%#			
15) 4-Terphenyl-d14	18.103	244	6715	77.30	ug/kg	-0.02
Spiked Amount 4000.000	Range 50 - 135		Recovery = 1.93%#			

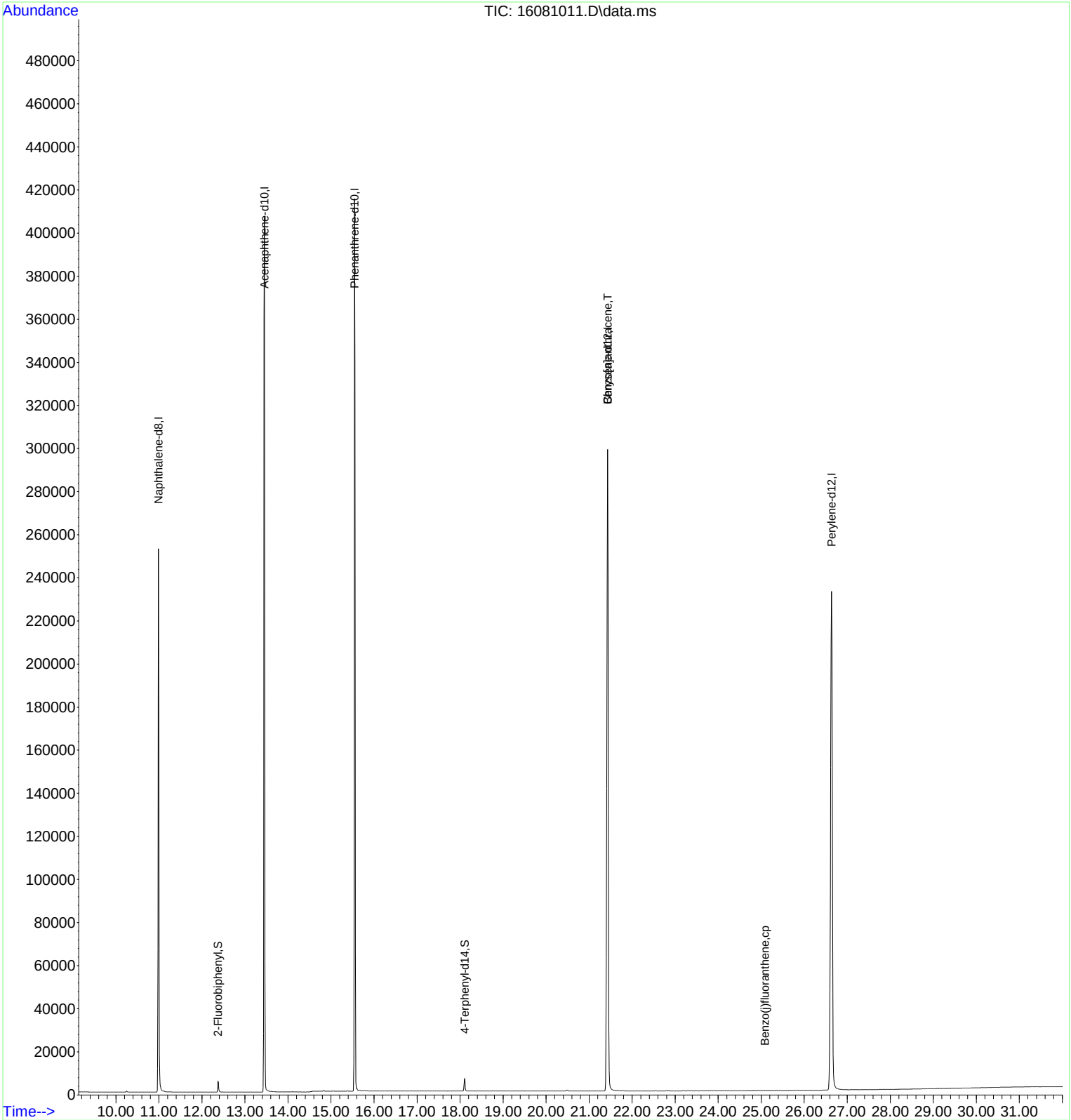
Target Compounds						Qvalue
18) Benzo[a]anthracene	21.429	228	1227	10.77	ug/kg	70
23) Benzo(j)fluoranthene	25.083	252	9	0.10	ug/kg#	1

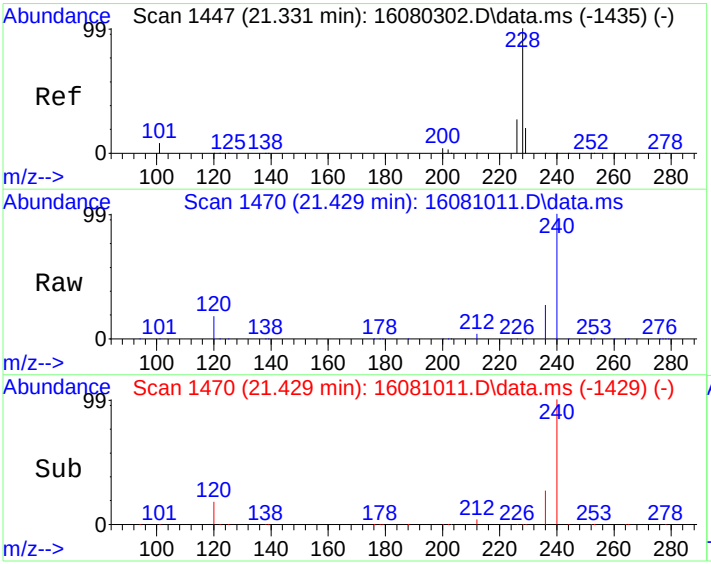
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160810\
Data File : 16081011.D
Acq On : 10 Aug 2016 1:14 pm
Operator :
Sample : 1607337-16A
Misc : SAMP
ALS Vial : 11 Sample Multiplier: 10

Quant Time: Aug 11 08:47:10 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration

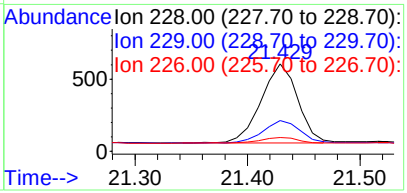


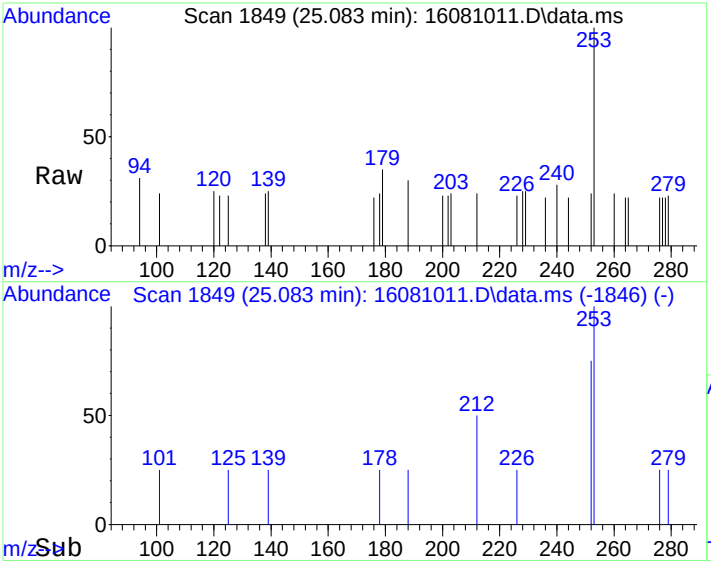


#18
Benzo[a]anthracene
Concen: 10.77 ug/kg
RT: 21.429 min Scan# 1470
Delta R.T. 0.144 min
Lab File: 16081011.D
Acq: 10 Aug 2016 1:14 pm

Tgt Ion:228 Resp: 1227

Ion	Ratio	Lower	Upper
228	100		
229	28.2	0.0	39.9
226	6.9	6.7	46.7

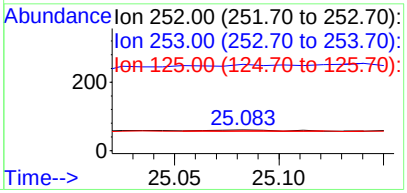




#23
Benzo(j)fluoranthene
Concen: 0.10 ug/kg
RT: 25.083 min Scan# 1849
Delta R.T. -0.010 min
Lab File: 16081011.D
Acq: 10 Aug 2016 1:14 pm

Tgt Ion:252 Resp: 9

Ion	Ratio	Lower	Upper
252	100		
253	788.9	1.9	41.9#
125	22.2	0.0	39.4



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160810\
Data File : 16081012.D
Acq On : 10 Aug 2016 1:54 pm
Operator :
Sample : 1607337-17A
Misc : SAMP
ALS Vial : 12 Sample Multiplier: 10

Quant Time: Aug 11 08:47:14 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	10.994	136	325210	4000.00	ug/kg	123
6) Acenaphthene-d10	13.448	164	230749	4000.00	ug/kg	142
11) Phenanthrene-d10	15.557	188	493868	4000.00	ug/kg	96
17) Chrysene-d12	21.428	240	457784	4000.00	ug/kg	99
20) Perylene-d12	26.634	264	455137	4000.00	ug/kg	108

System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.377	172	6016	83.15	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 2.08%#			
15) 4-Terphenyl-d14	18.102	244	7072	81.45	ug/kg	-0.02
Spiked Amount 4000.000	Range 50 - 135		Recovery = 2.04%#			

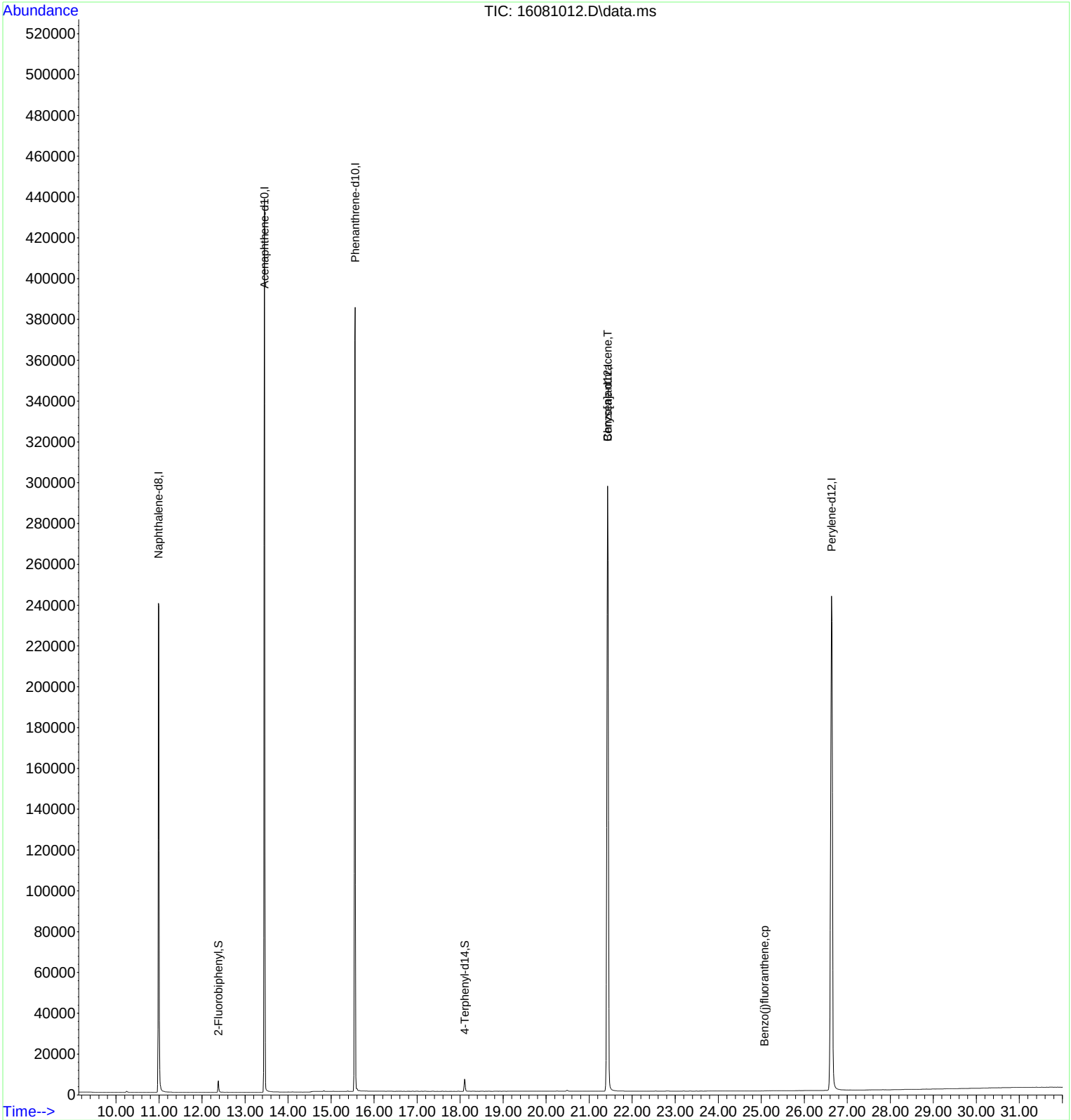
Target Compounds						Qvalue
18) Benzo[a]anthracene	21.428	228	1235	10.71	ug/kg#	71
23) Benzo(j)fluoranthene	25.063	252	3	0.03	ug/kg#	1

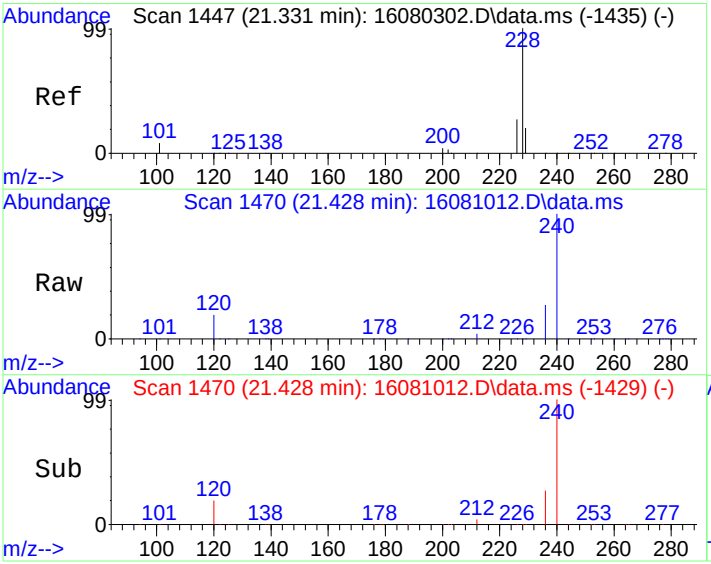
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160810\
Data File : 16081012.D
Acq On : 10 Aug 2016 1:54 pm
Operator :
Sample : 1607337-17A
Misc : SAMP
ALS Vial : 12 Sample Multiplier: 10

Quant Time: Aug 11 08:47:14 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration

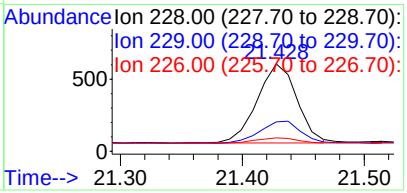


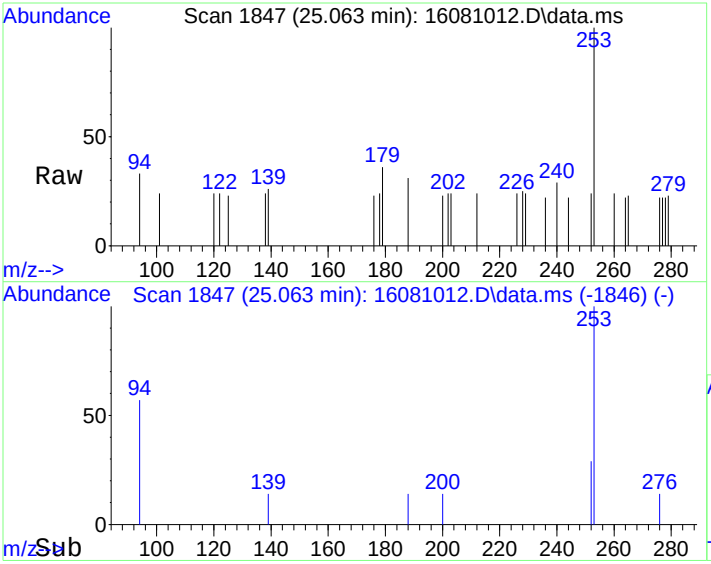


#18
Benzo[a]anthracene
Concen: 10.71 ug/kg
RT: 21.428 min Scan# 1470
Delta R.T. 0.143 min
Lab File: 16081012.D
Acq: 10 Aug 2016 1:54 pm

Tgt Ion:228 Resp: 1235

Ion	Ratio	Lower	Upper
228	100		
229	26.9	0.0	39.9
226	6.6	6.7	46.7#

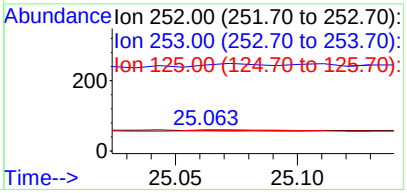




#23
Benzo(j)fluoranthene
Concen: 0.03 ug/kg
RT: 25.063 min Scan# 1847
Delta R.T. -0.030 min
Lab File: 16081012.D
Acq: 10 Aug 2016 1:54 pm

Tgt Ion:252 Resp: 3

Ion	Ratio	Lower	Upper
252	100		
253	800.0	1.9	41.9#
125	66.7	0.0	39.4#



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160810\
Data File : 16081013.D
Acq On : 10 Aug 2016 2:34 pm
Operator :
Sample : 1607337-18A
Misc : SAMP
ALS Vial : 13 Sample Multiplier: 10

Quant Time: Aug 11 08:47:18 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	10.990	136	314597	4000.00	ug/kg	119
6) Acenaphthene-d10	13.451	164	236342	4000.00	ug/kg	146
11) Phenanthrene-d10	15.558	188	503094	4000.00	ug/kg	98
17) Chrysene-d12	21.429	240	445790	4000.00	ug/kg	96
20) Perylene-d12	26.635	264	442708	4000.00	ug/kg	105

System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.373	172	5992	85.62	ug/kg	-0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery = 2.14%#			
15) 4-Terphenyl-d14	18.103	244	6717	75.94	ug/kg	-0.02
Spiked Amount 4000.000	Range 50 - 135		Recovery = 1.90%#			

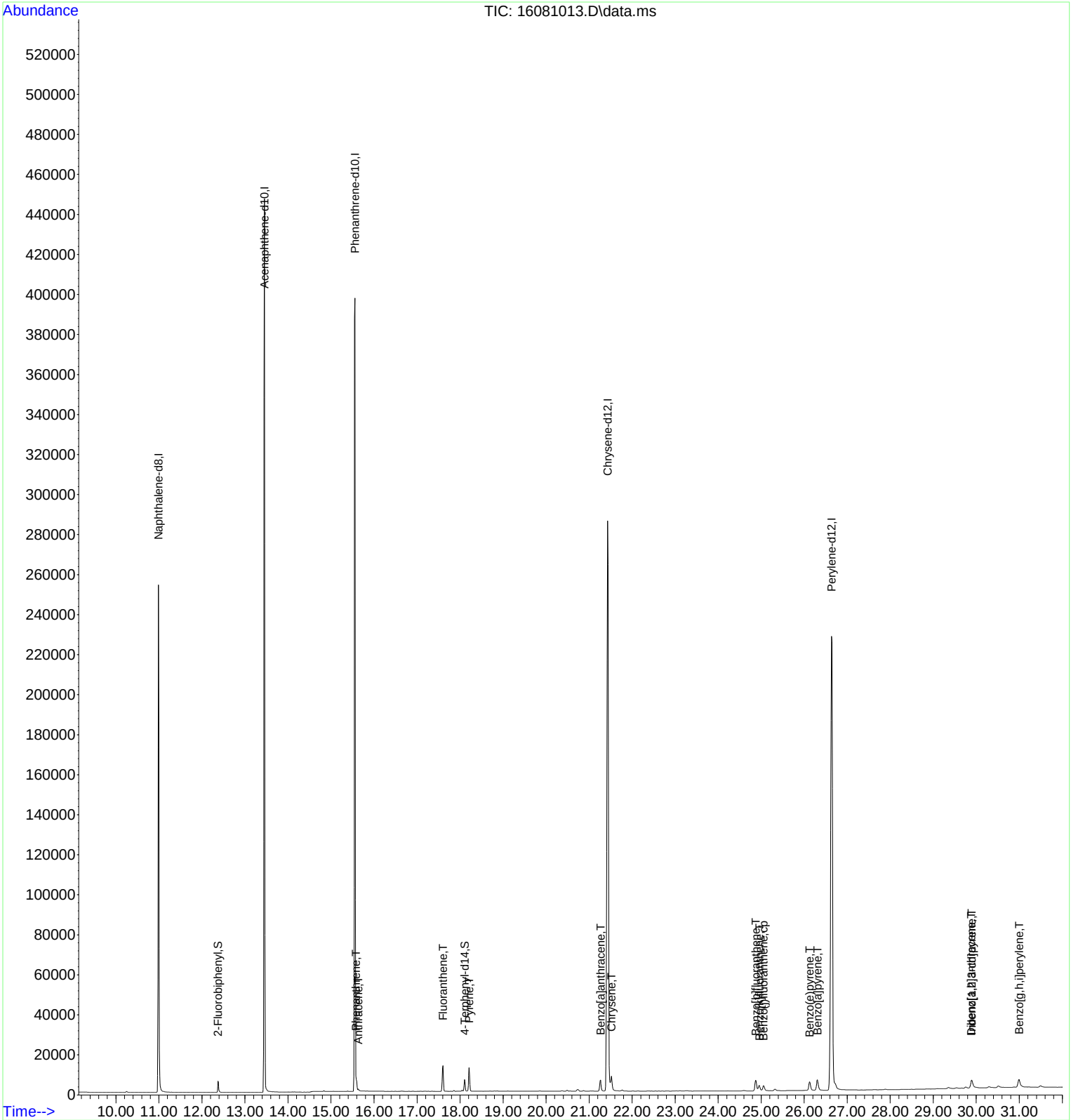
Target Compounds						Qvalue
12) Phenanthrene	15.587	178	4652	33.13	ug/kg	99
13) Anthracene	15.635	178	756	5.76	ug/kg	99
14) Fluoranthene	17.602	202	14510	106.26	ug/kg	91
16) Pyrene	18.209	202	13360	97.86	ug/kg	100
18) Benzo[a]anthracene	21.266	228	8314	74.05	ug/kg	98
19) Chrysene	21.516	228	9872	92.90	ug/kg	99
21) Benzo[b]fluoranthene	24.871	252	10753	95.80	ug/kg	99
22) Benzo[k]fluoranthene	24.958	252	4317	46.17	ug/kg	98
23) Benzo(j)fluoranthene	25.054	252	4378	48.26	ug/kg	93
24) Benzo(e)pyrene	26.124	252	8728	78.14	ug/kg	96
25) Benzo[a]pyrene	26.308	252	11280	107.39	ug/kg	99
26) Indeno[1,2,3-cd]pyrene	29.894	276	8842	67.86	ug/kg	89
27) Dibenz[a,h]anthracene	29.875	278	1676	16.04	ug/kg	92
28) Benzo[g,h,i]perylene	30.993	276	9839	85.06	ug/kg	99

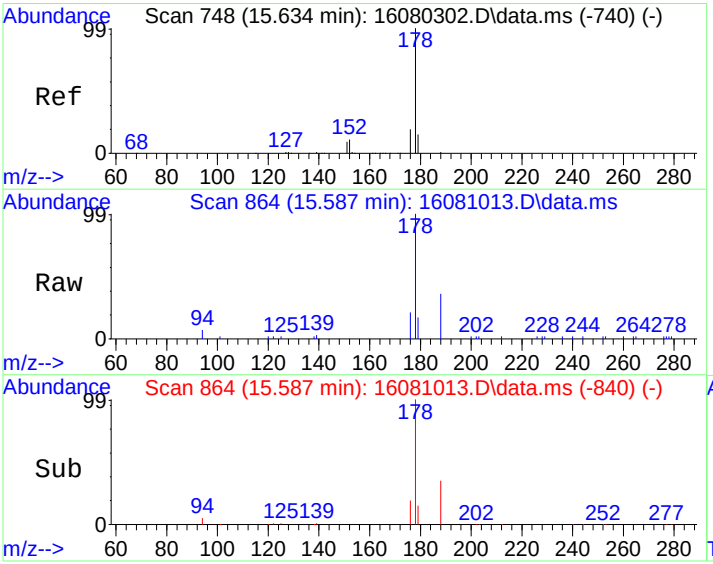
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160810\
Data File : 16081013.D
Acq On : 10 Aug 2016 2:34 pm
Operator :
Sample : 1607337-18A
Misc : SAMP
ALS Vial : 13 Sample Multiplier: 10

Quant Time: Aug 11 08:47:18 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration

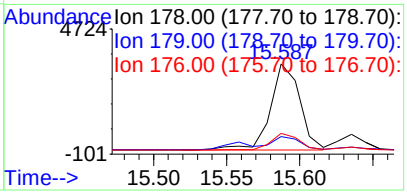


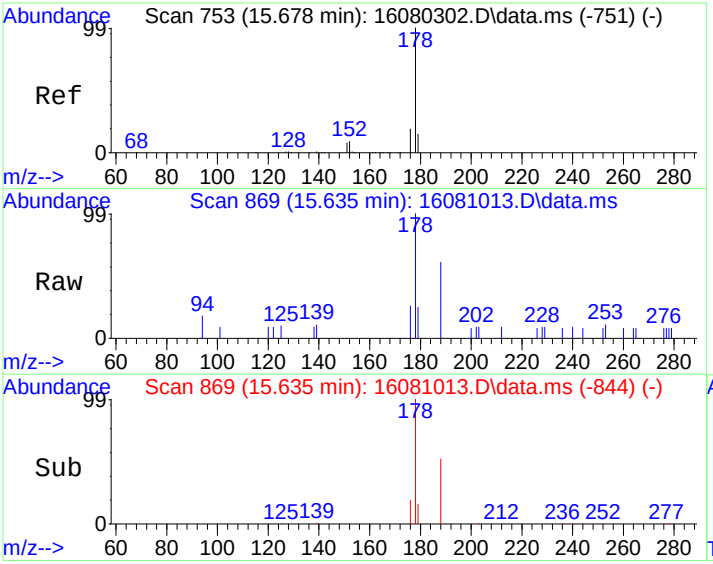


#12
Phenanthrene
Concen: 33.13 ug/kg
RT: 15.587 min Scan# 864
Delta R.T. -0.019 min
Lab File: 16081013.D
Acq: 10 Aug 2016 2:34 pm

Tgt Ion:178 Resp: 4652

Ion	Ratio	Lower	Upper
178	100		
179	15.3	0.0	35.7
176	19.2	0.0	38.8

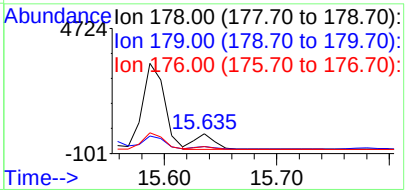


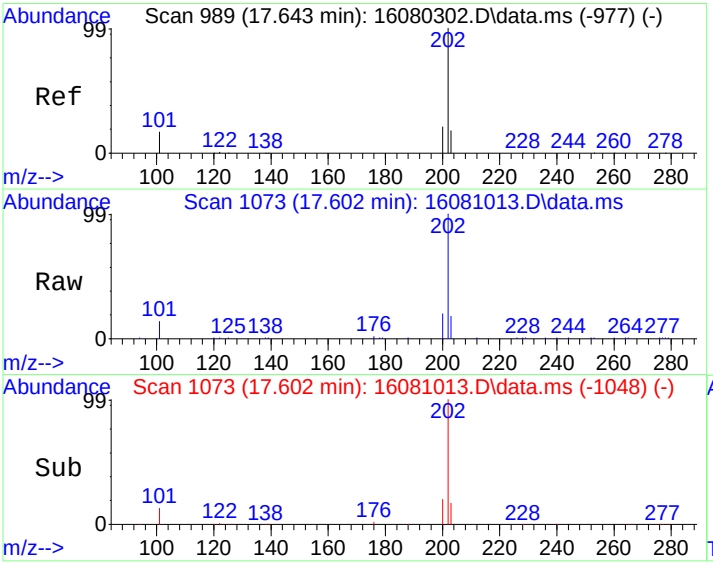


#13
Anthracene
Concen: 5.76 ug/kg
RT: 15.635 min Scan# 869
Delta R.T. -0.010 min
Lab File: 16081013.D
Acq: 10 Aug 2016 2:34 pm

Tgt Ion:178 Resp: 756

Ion	Ratio	Lower	Upper
178	100		
179	16.2	0.0	35.5
176	18.7	0.0	38.7

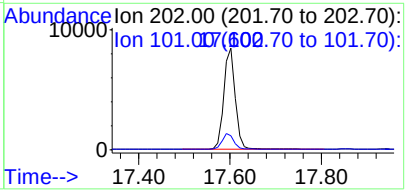


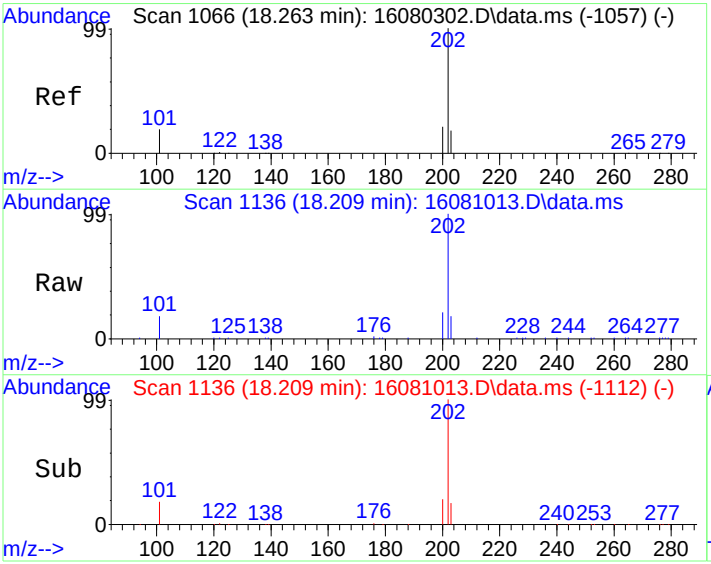


#14
Fluoranthene
Concen: 106.26 ug/kg
RT: 17.602 min Scan# 1073
Delta R.T. -0.010 min
Lab File: 16081013.D
Acq: 10 Aug 2016 2:34 pm

Tgt Ion:202 Resp: 14510

Ion	Ratio	Lower	Upper
202	100		
101	13.3	0.0	37.2

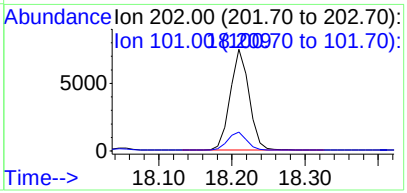


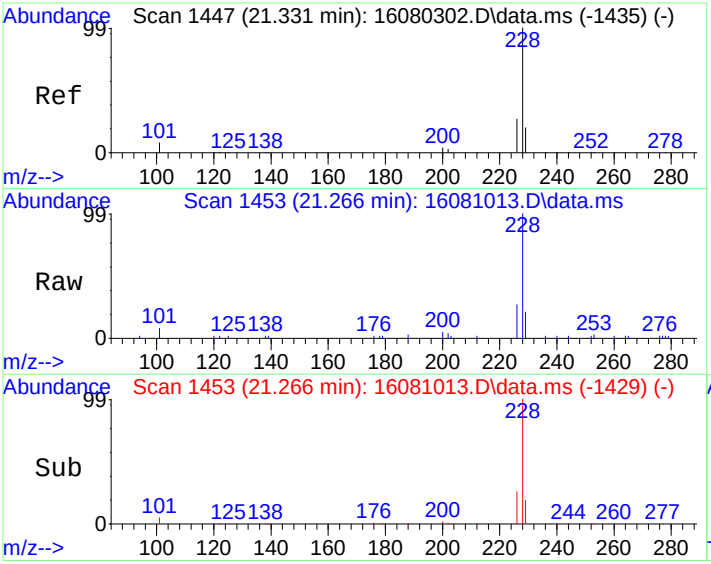


#16
Pyrene
Concen: 97.86 ug/kg
RT: 18.209 min Scan# 1136
Delta R.T. -0.019 min
Lab File: 16081013.D
Acq: 10 Aug 2016 2:34 pm

Tgt Ion:202 Resp: 13360

Ion	Ratio	Lower	Upper
202	100		
101	17.8	0.0	38.0

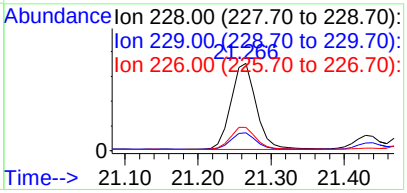


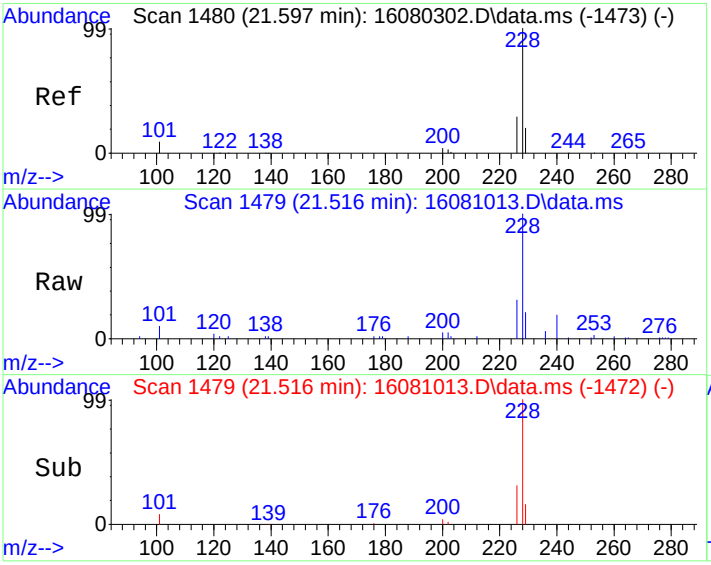


#18
Benzo[a]anthracene
Concen: 74.05 ug/kg
RT: 21.266 min Scan# 1453
Delta R.T. -0.019 min
Lab File: 16081013.D
Acq: 10 Aug 2016 2:34 pm

Tgt Ion:228 Resp: 8314

Ion	Ratio	Lower	Upper
228	100		
229	19.3	0.0	39.9
226	25.8	6.7	46.7

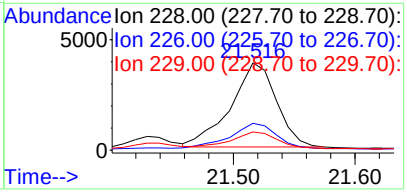


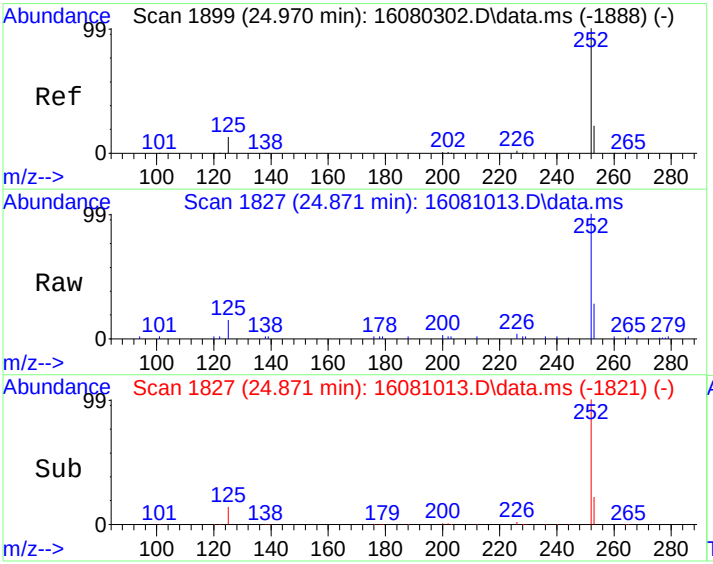


#19
Chrysene
Concen: 92.90 ug/kg
RT: 21.516 min Scan# 1479
Delta R.T. -0.029 min
Lab File: 16081013.D
Acq: 10 Aug 2016 2:34 pm

Tgt Ion:228 Resp: 9872

Ion	Ratio	Lower	Upper
228	100		
226	29.8	9.3	49.3
229	19.6	0.0	39.8

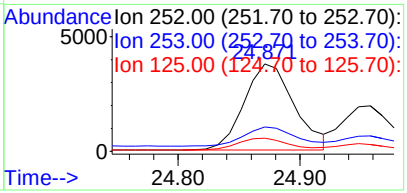


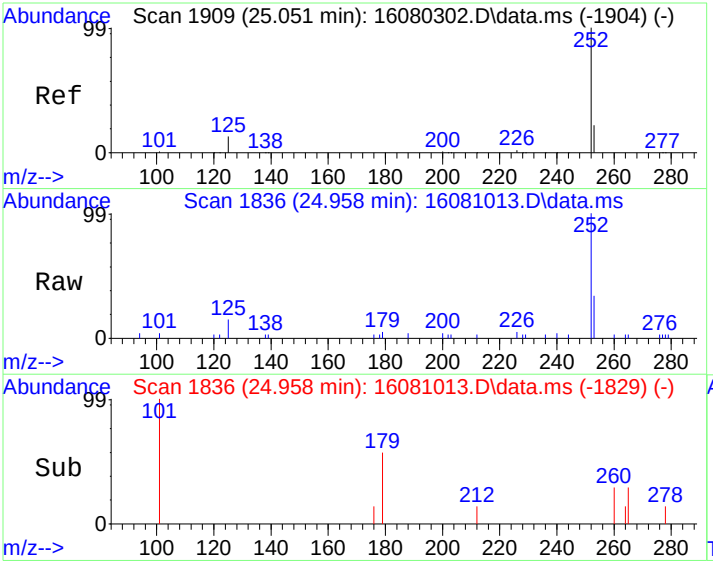


#21
Benzo[b]fluoranthene
Concen: 95.80 ug/kg
RT: 24.871 min Scan# 1827
Delta R.T. -0.039 min
Lab File: 16081013.D
Acq: 10 Aug 2016 2:34 pm

Tgt Ion:252 Resp: 10753

Ion	Ratio	Lower	Upper
252	100		
253	22.2	1.9	41.9
125	13.7	0.0	33.2

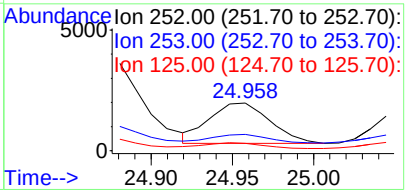


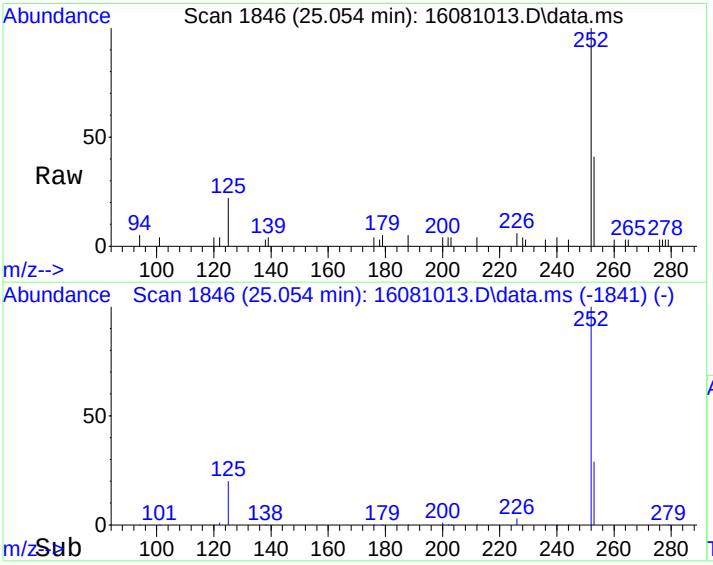


#22
Benzo[k]fluoranthene
Concen: 46.17 ug/kg
RT: 24.958 min Scan# 1836
Delta R.T. -0.029 min
Lab File: 16081013.D
Acq: 10 Aug 2016 2:34 pm

Tgt Ion:252 Resp: 4317

Ion	Ratio	Lower	Upper
252	100		
253	21.5	2.1	42.1
125	12.6	0.0	33.9

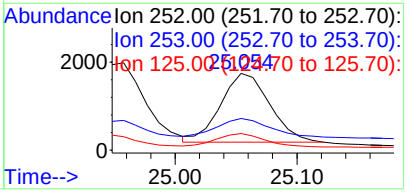


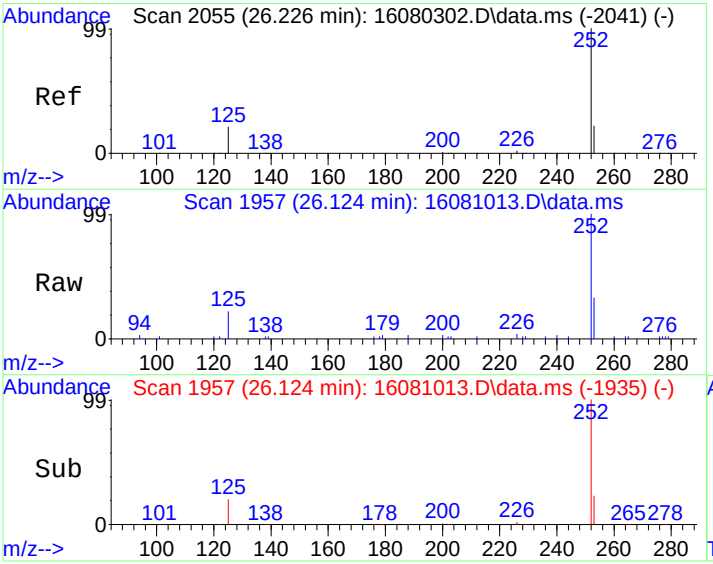


#23
Benzo(j)fluoranthene
Concen: 48.26 ug/kg
RT: 25.054 min Scan# 1846
Delta R.T. -0.039 min
Lab File: 16081013.D
Acq: 10 Aug 2016 2:34 pm

Tgt Ion:252 Resp: 4378

Ion	Ratio	Lower	Upper
252	100		
253	28.1	1.9	41.9
125	19.1	0.0	39.4

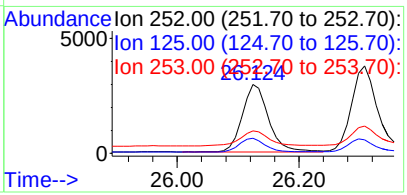


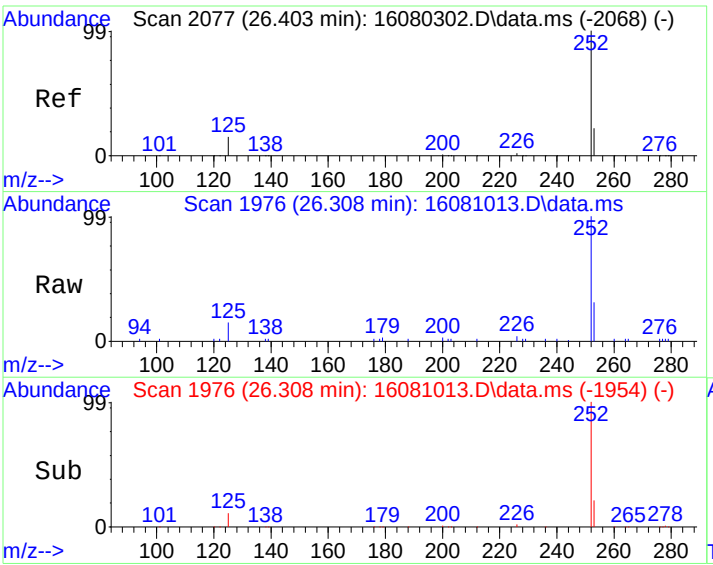


#24
Benzo(e)pyrene
Concen: 78.14 ug/kg
RT: 26.124 min Scan# 1957
Delta R.T. -0.039 min
Lab File: 16081013.D
Acq: 10 Aug 2016 2:34 pm

Tgt Ion:252 Resp: 8728

Ion	Ratio	Lower	Upper
252	100		
125	20.4	0.5	40.5
253	25.4	2.1	42.1

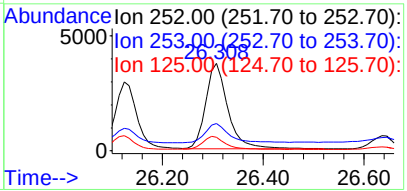


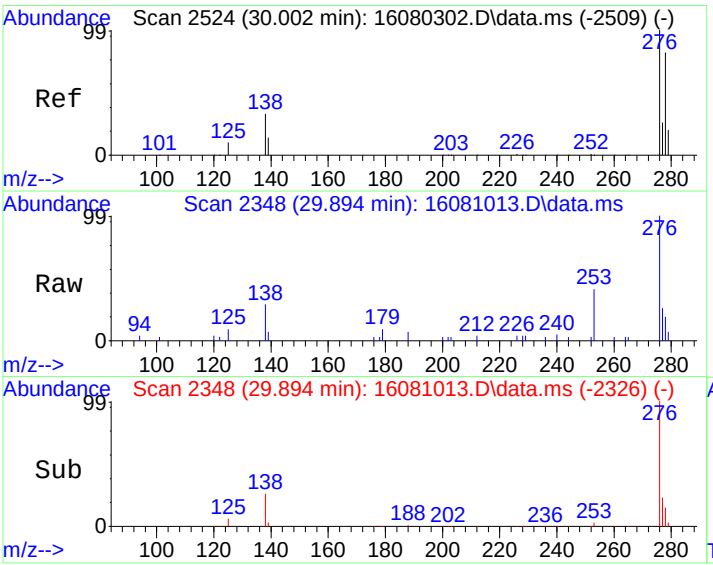


#25
Benzo[a]pyrene
Concen: 107.39 ug/kg
RT: 26.308 min Scan# 1976
Delta R.T. -0.039 min
Lab File: 16081013.D
Acq: 10 Aug 2016 2:34 pm

Tgt Ion:252 Resp: 11280

Ion	Ratio	Lower	Upper
252	100		
253	22.4	1.9	41.9
125	14.0	0.0	33.5

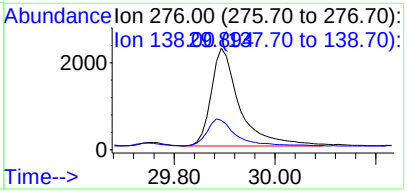


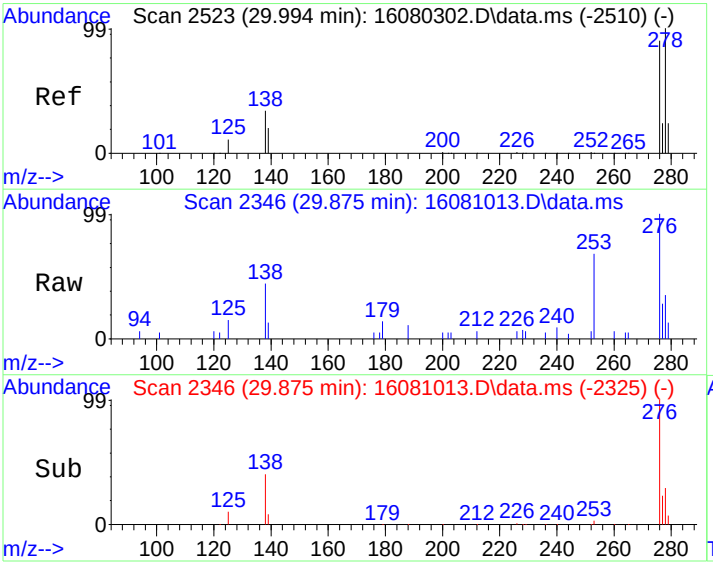


#26
Indeno[1,2,3-cd]pyrene
Concen: 67.86 ug/kg
RT: 29.894 min Scan# 2348
Delta R.T. -0.039 min
Lab File: 16081013.D
Acq: 10 Aug 2016 2:34 pm

Tgt Ion:276 Resp: 8842

Ion	Ratio	Lower	Upper
276	100		
138	26.1	12.2	52.2

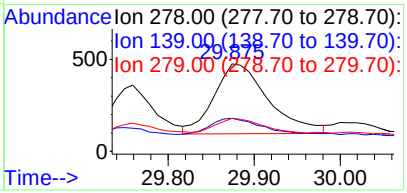


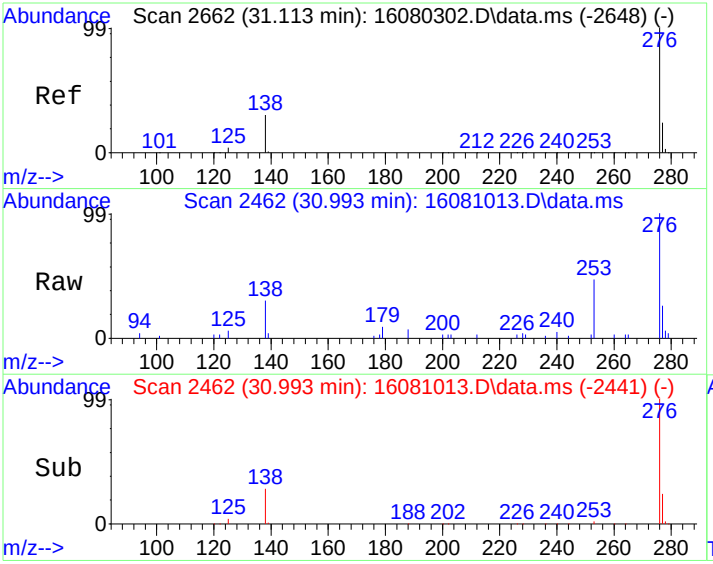


#27
Dibenz[a,h]anthracene
Concen: 16.04 ug/kg
RT: 29.875 min Scan# 2346
Delta R.T. -0.048 min
Lab File: 16081013.D
Acq: 10 Aug 2016 2:34 pm

Tgt Ion:278 Resp: 1676

Ion	Ratio	Lower	Upper
278	100		
139	26.0	0.2	40.2
279	22.2	3.9	43.9

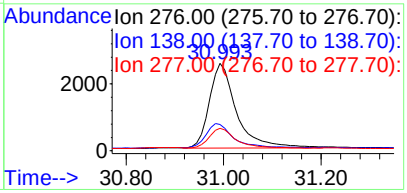




#28
Benzo[g,h,i]perylene
Concen: 85.06 ug/kg
RT: 30.993 min Scan# 2462
Delta R.T. -0.048 min
Lab File: 16081013.D
Acq: 10 Aug 2016 2:34 pm

Tgt Ion:276 Resp: 9839

Ion	Ratio	Lower	Upper
276	100		
138	27.2	6.9	46.9
277	23.2	3.9	43.9



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160810\
Data File : 16081014.D
Acq On : 10 Aug 2016 3:14 pm
Operator :
Sample : 1607337-19A
Misc : SAMP
ALS Vial : 14 Sample Multiplier: 10

Quant Time: Aug 11 08:47:26 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	10.994	136	321248	4000.00	ug/kg	121
6) Acenaphthene-d10	13.448	164	228465	4000.00	ug/kg	141
11) Phenanthrene-d10	15.559	188	500882	4000.00	ug/kg	97
17) Chrysene-d12	21.430	240	469945	4000.00	ug/kg	102
20) Perylene-d12	26.636	264	459369	4000.00	ug/kg	109

System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.377	172	5749	80.44	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 2.01%#			
15) 4-Terphenyl-d14	18.104	244	6861	77.91	ug/kg	-0.02
Spiked Amount 4000.000	Range 50 - 135		Recovery = 1.95%#			

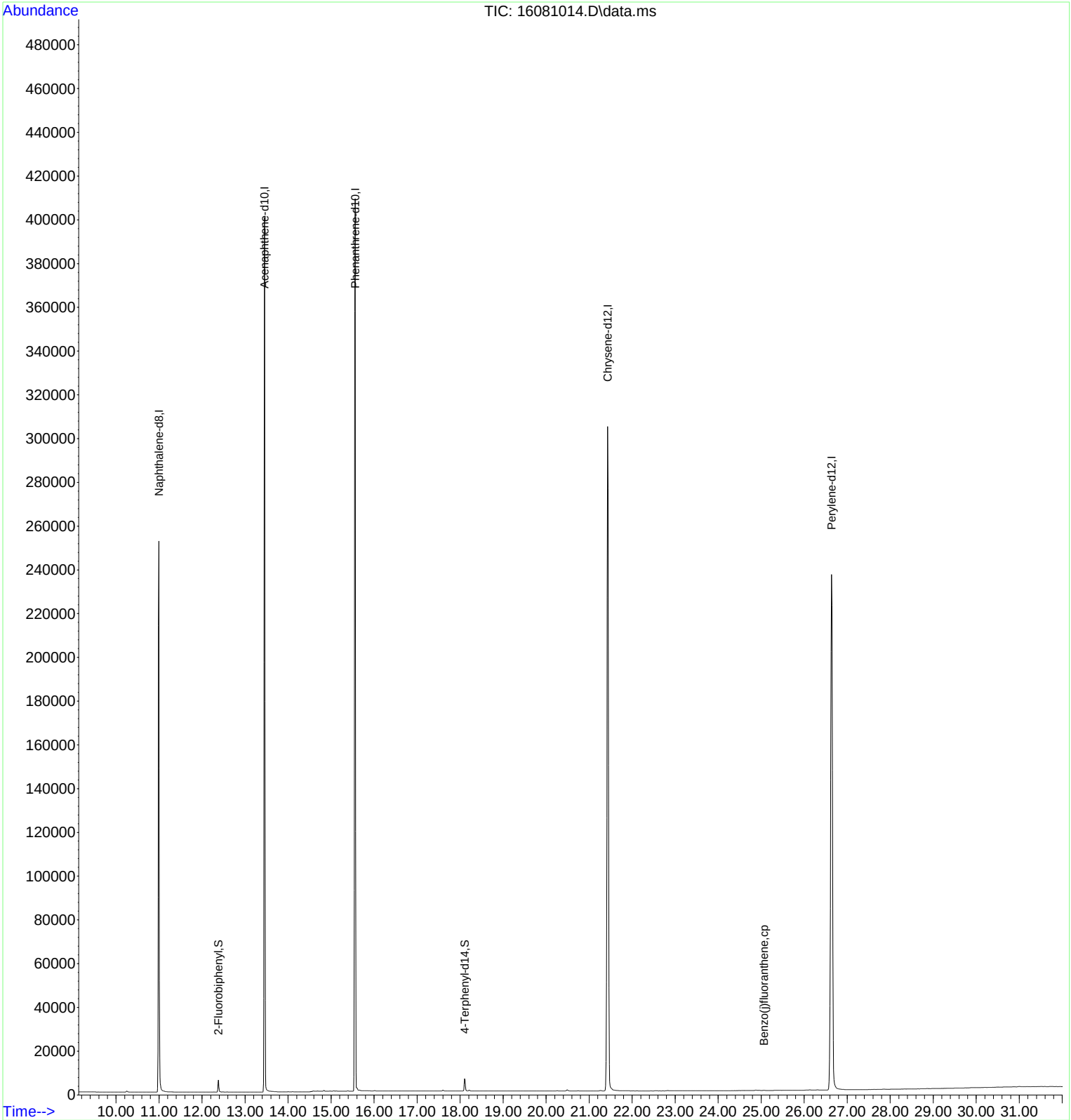
Target Compounds						Qvalue
23) Benzo(j)fluoranthene	25.064	252	148	1.57	ug/kg#	71

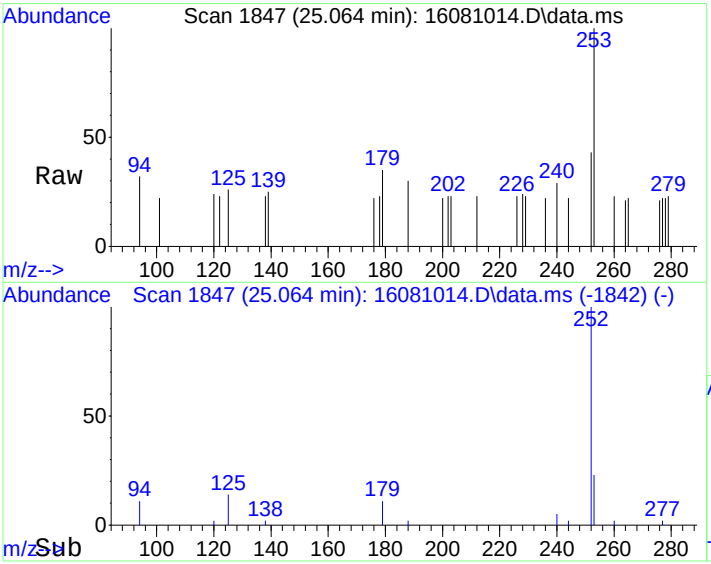
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160810\
Data File : 16081014.D
Acq On : 10 Aug 2016 3:14 pm
Operator :
Sample : 1607337-19A
Misc : SAMP
ALS Vial : 14 Sample Multiplier: 10

Quant Time: Aug 11 08:47:26 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration

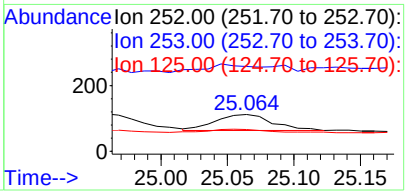




#23
Benzo(j)fluoranthene
Concen: 1.57 ug/kg
RT: 25.064 min Scan# 1847
Delta R.T. -0.028 min
Lab File: 16081014.D
Acq: 10 Aug 2016 3:14 pm

Tgt Ion:252 Resp: 148

Ion	Ratio	Lower	Upper
252	100		
253	45.3	1.9	41.9#
125	16.9	0.0	39.4



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160810\
Data File : 16081015.D
Acq On : 10 Aug 2016 3:55 pm
Operator :
Sample : 1607337-20A
Misc : SAMP
ALS Vial : 15 Sample Multiplier: 10

Quant Time: Aug 11 08:47:30 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	10.990	136	326563	4000.00	ug/kg	123
6) Acenaphthene-d10	13.451	164	230624	4000.00	ug/kg	142
11) Phenanthrene-d10	15.558	188	510497	4000.00	ug/kg	99
17) Chrysene-d12	21.439	240	476687	4000.00	ug/kg	103
20) Perylene-d12	26.645	264	474276	4000.00	ug/kg	113

System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.380	172	5697	78.42	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 1.96%#			
15) 4-Terphenyl-d14	18.113	244	6946	77.39	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery = 1.93%#			

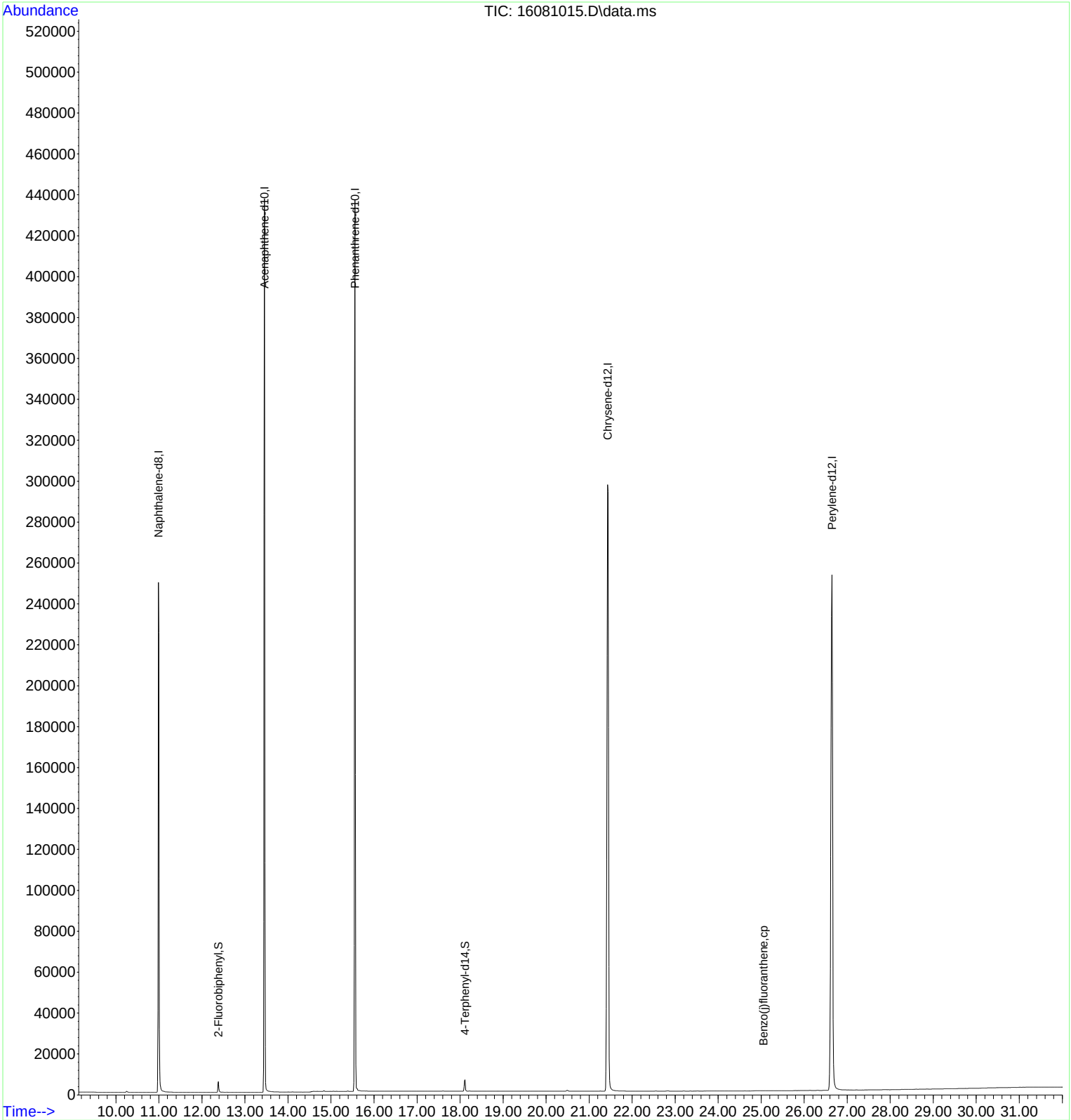
Target Compounds						Qvalue
23) Benzo(j)fluoranthene	25.064	252	56	0.58	ug/kg#	42

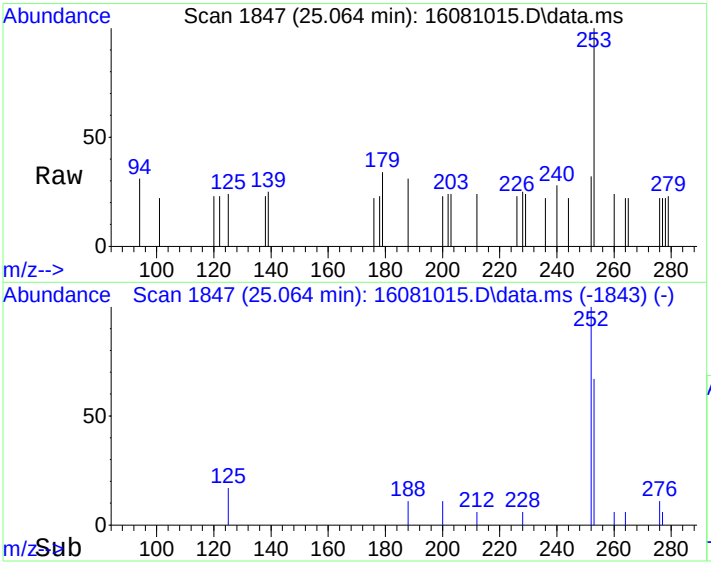
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160810\
Data File : 16081015.D
Acq On : 10 Aug 2016 3:55 pm
Operator :
Sample : 1607337-20A
Misc : SAMP
ALS Vial : 15 Sample Multiplier: 10

Quant Time: Aug 11 08:47:30 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration

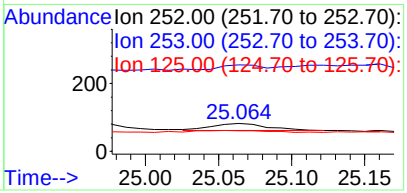




#23
Benzo(j)fluoranthene
Concen: 0.58 ug/kg
RT: 25.064 min Scan# 1847
Delta R.T. -0.029 min
Lab File: 16081015.D
Acq: 10 Aug 2016 3:55 pm

Tgt Ion:252 Resp: 56

Ion	Ratio	Lower	Upper
252	100		
253	60.7	1.9	41.9#
125	33.9	0.0	39.4



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160810\
Data File : 16081016.D
Acq On : 10 Aug 2016 4:35 pm
Operator :
Sample : 1607337-21A
Misc : SAMP
ALS Vial : 16 Sample Multiplier: 10

Quant Time: Aug 11 08:47:33 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	10.990	136	317464	4000.00	ug/kg	120
6) Acenaphthene-d10	13.451	164	231222	4000.00	ug/kg	143
11) Phenanthrene-d10	15.559	188	497717	4000.00	ug/kg	97
17) Chrysene-d12	21.439	240	450043	4000.00	ug/kg	97
20) Perylene-d12	26.645	264	449433	4000.00	ug/kg	107

System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.380	172	5481	77.61	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 1.94%#			
15) 4-Terphenyl-d14	18.113	244	6419	73.36	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery = 1.83%#			

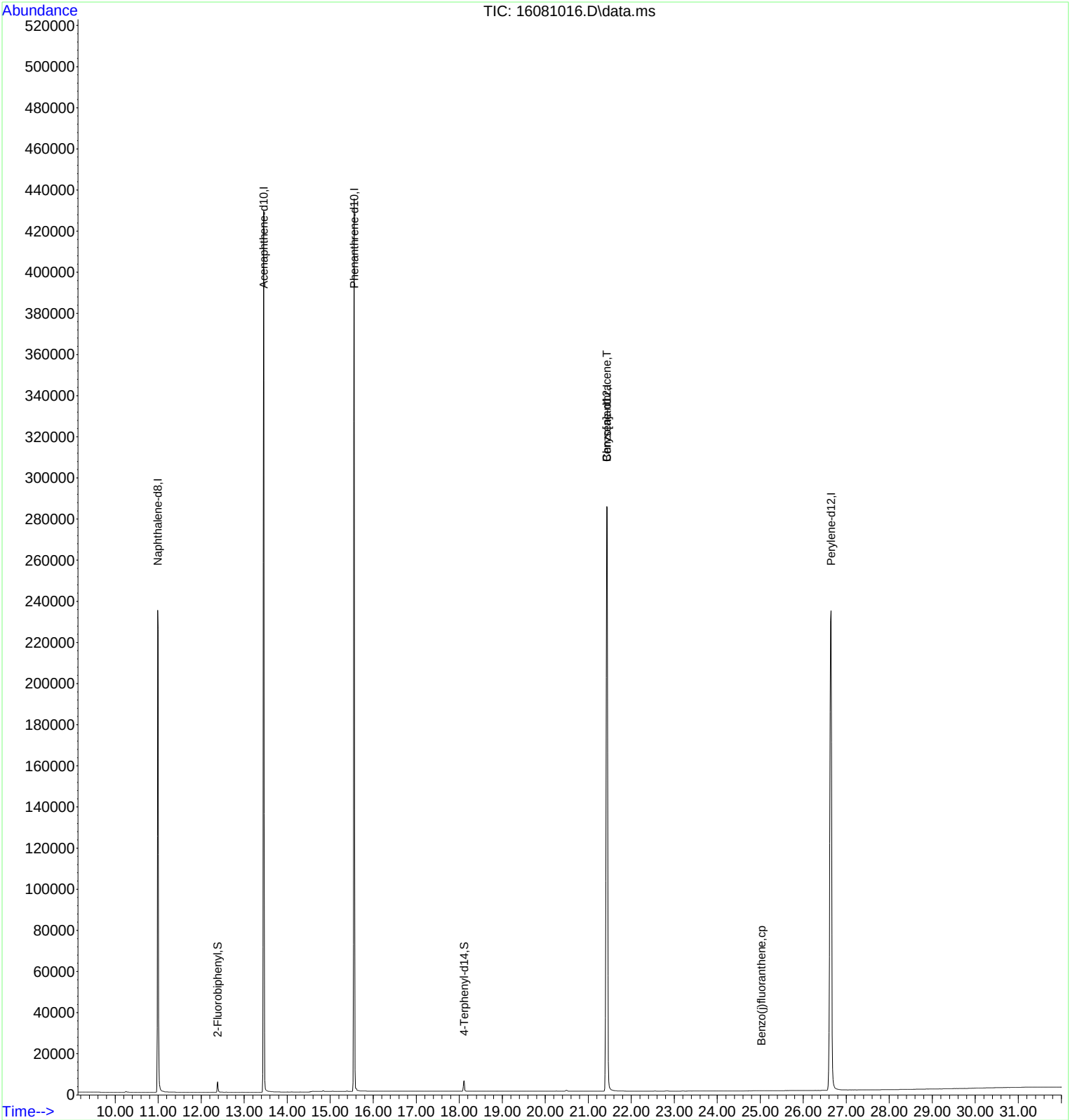
Target Compounds						Qvalue
18) Benzo[a]anthracene	21.439	228	1231	10.86	ug/kg	70
23) Benzo(j)fluoranthene	25.035	252	9	0.10	ug/kg#	73

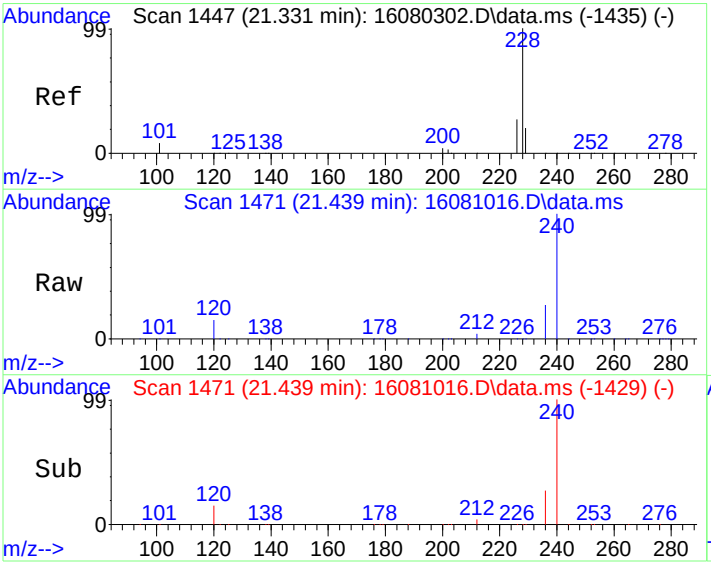
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160810\
Data File : 16081016.D
Acq On : 10 Aug 2016 4:35 pm
Operator :
Sample : 1607337-21A
Misc : SAMP
ALS Vial : 16 Sample Multiplier: 10

Quant Time: Aug 11 08:47:33 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration

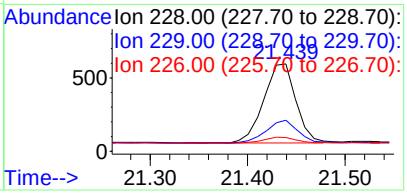


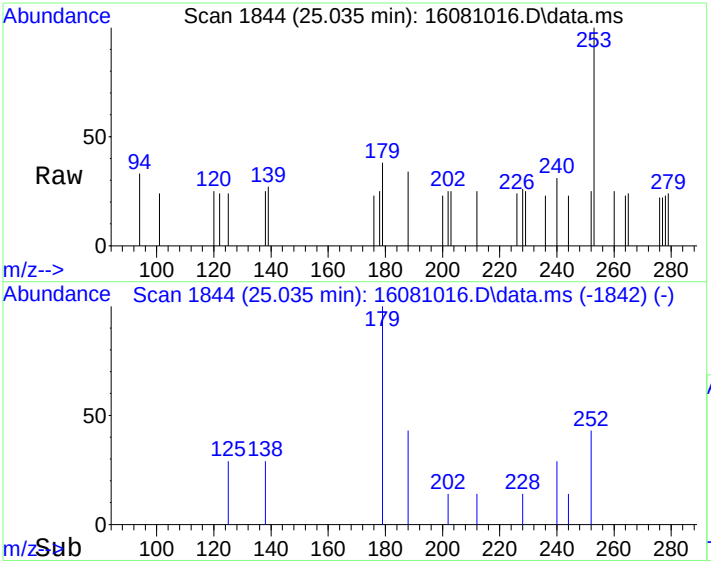


#18
Benzo[a]anthracene
Concen: 10.86 ug/kg
RT: 21.439 min Scan# 1471
Delta R.T. 0.154 min
Lab File: 16081016.D
Acq: 10 Aug 2016 4:35 pm

Tgt Ion:228 Resp: 1231

Ion	Ratio	Lower	Upper
228	100		
229	28.7	0.0	39.9
226	6.9	6.7	46.7

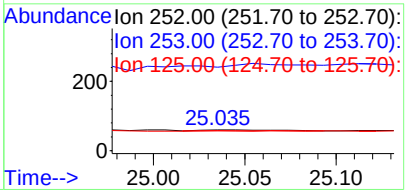




#23
Benzo(j)fluoranthene
Concen: 0.10 ug/kg
RT: 25.035 min Scan# 1844
Delta R.T. -0.058 min
Lab File: 16081016.D
Acq: 10 Aug 2016 4:35 pm

Tgt Ion:252 Resp: 9

Ion	Ratio	Lower	Upper
252	100		
253	0.0	1.9	41.9#
125	22.2	0.0	39.4



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160810\
Data File : 16081018.D
Acq On : 10 Aug 2016 5:54 pm
Operator :
Sample : ICV-160810
Misc : ICV
ALS Vial : 18 Sample Multiplier: 1

Quant Time: Aug 11 08:29:03 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	10.994	136	332211	4000.00	ug/kg	125
6) Acenaphthene-d10	13.455	164	245824	4000.00	ug/kg	152
11) Phenanthrene-d10	15.559	188	552852	4000.00	ug/kg	107
17) Chrysene-d12	21.439	240	499212	4000.00	ug/kg	108
20) Perylene-d12	26.645	264	496748	4000.00	ug/kg	118

System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.377	172	147737	1999.02	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 49.98%			
15) 4-Terphenyl-d14	18.114	244	186148	1915.19	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery = 47.88%#			

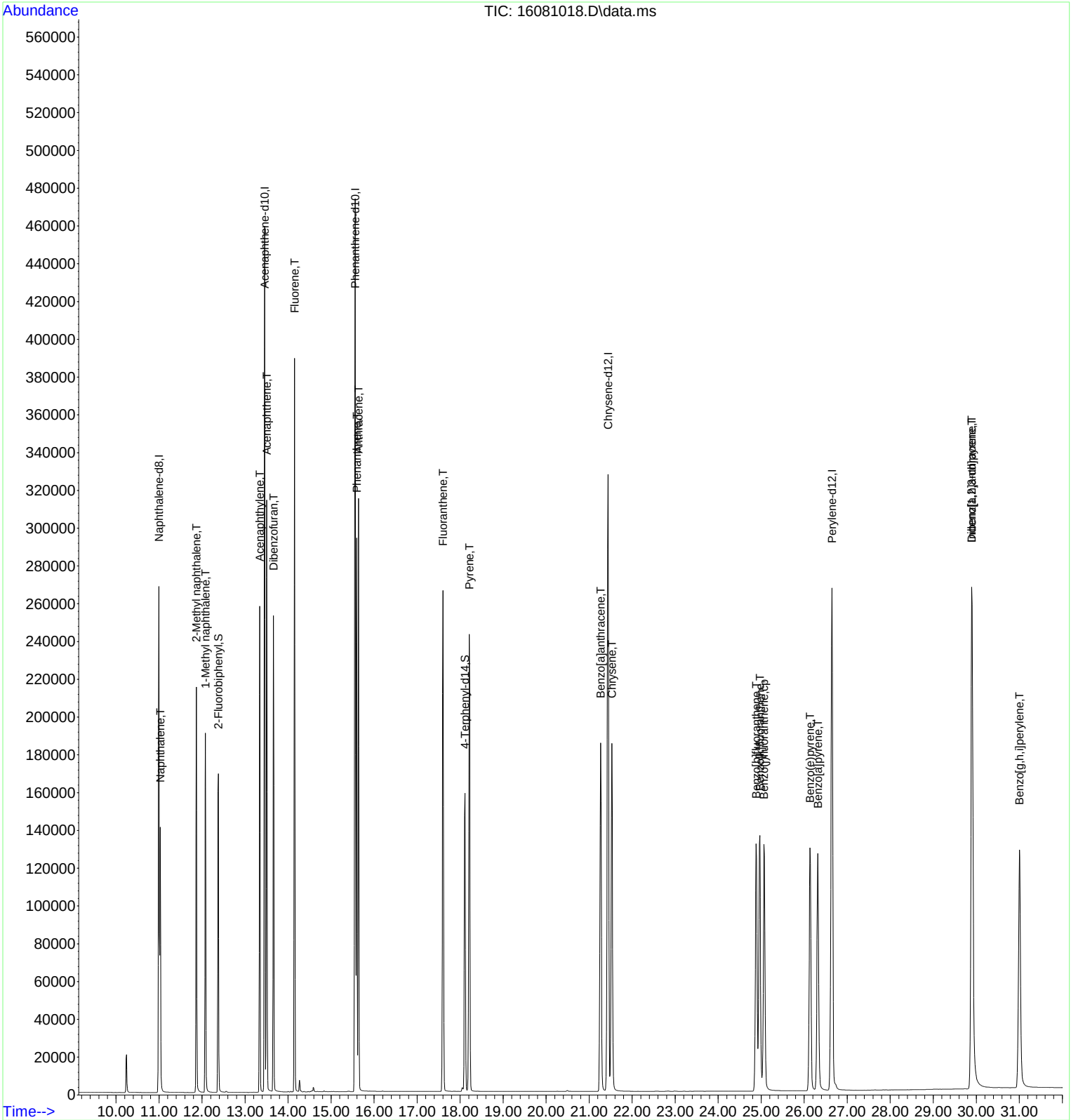
Target Compounds						Qvalue
2) Naphthalene	11.029	128	151897	1916.81	ug/kg	100
3) 2-Methyl naphthalene	11.866	142	115736	2142.58	ug/kg	99
4) 1-Methyl naphthalene	12.079	142	106709	2148.84	ug/kg	99
7) Acenaphthylene	13.341	152	233468	2052.83	ug/kg	100
8) Acenaphthene	13.504	153	146138	1966.19	ug/kg	100
9) Dibenzofuran	13.660	168	226699	1777.05	ug/kg	98
10) Fluorene	14.150	166	191728	1738.01	ug/kg	100
12) Phenanthrene	15.597	178	284719	2023.42	ug/kg	100
13) Anthracene	15.636	178	277413	1922.35	ug/kg	100
14) Fluoranthene	17.603	202	282148	1880.23	ug/kg	94
16) Pyrene	18.210	202	279286	1861.52	ug/kg	96
18) Benzo[a]anthracene	21.266	228	252711	2009.96	ug/kg	100
19) Chrysene	21.526	228	237547	1996.18	ug/kg	100
21) Benzo[b]fluoranthene	24.881	252	250418	1988.28	ug/kg	98
22) Benzo[k]fluoranthene	24.968	252	229660	2188.98	ug/kg	99
23) Benzo(j)fluoranthene	25.064	252	220350	2164.58	ug/kg	100
24) Benzo(e)pyrene	26.134	252	247477	1974.57	ug/kg	100
25) Benzo[a]pyrene	26.318	252	240548	2040.94	ug/kg	99
26) Indeno[1,2,3-cd]pyrene	29.904	276	305633	2090.40	ug/kg	98
27) Dibenz[a,h]anthracene	29.894	278	251096	2141.76	ug/kg	99
28) Benzo[g,h,i]perylene	31.013	276	258622	1992.59	ug/kg	99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160810\
Data File : 16081018.D
Acq On : 10 Aug 2016 5:54 pm
Operator :
Sample : ICV-160810
Misc : ICV
ALS Vial : 18 Sample Multiplier: 1

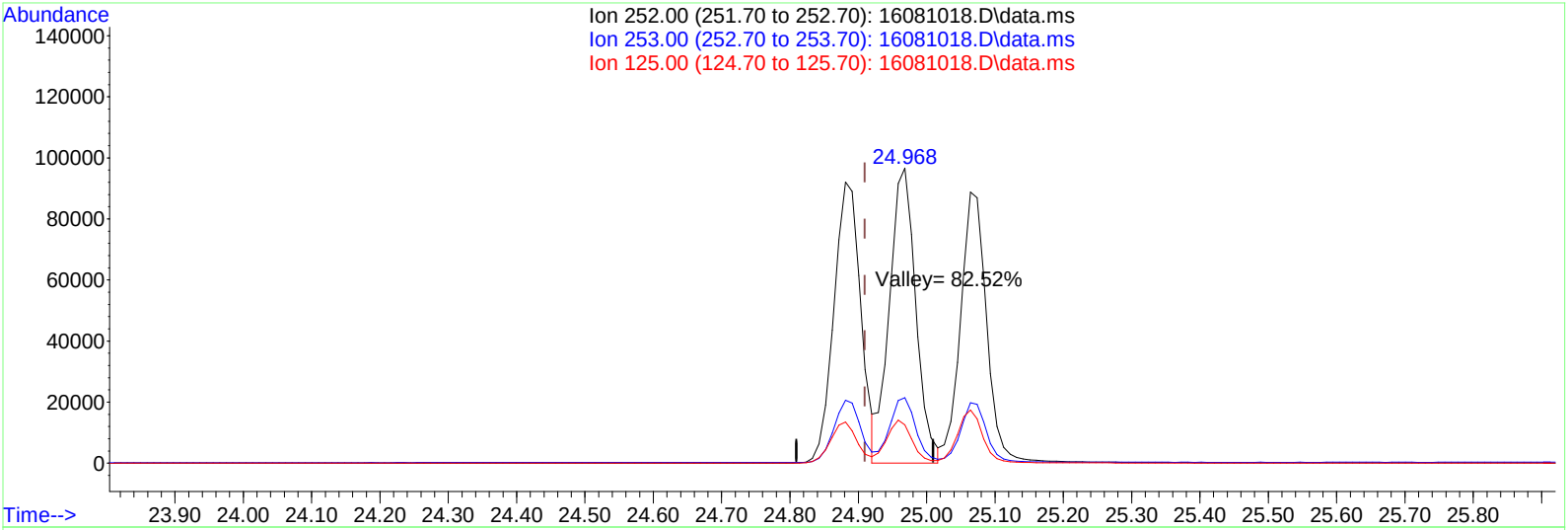
Quant Time: Aug 11 08:29:03 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration

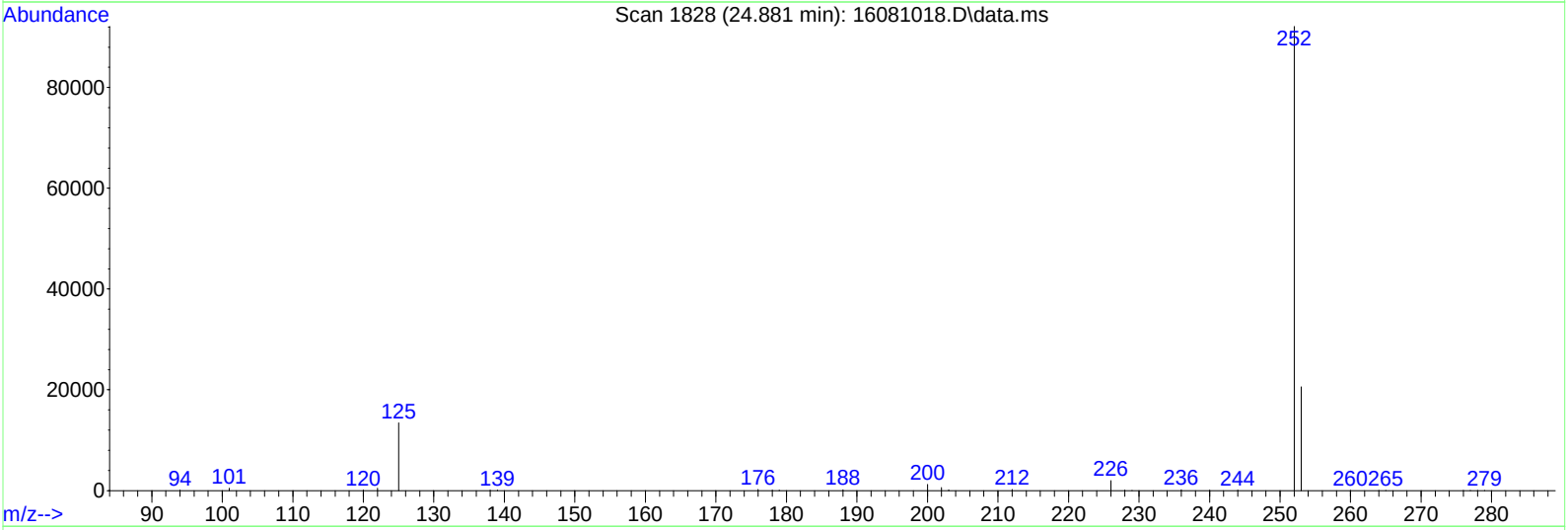


Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\160810\
Data File : 16081018.D
Acq On : 10 Aug 2016 5:54 pm
Operator :
Sample : ICV-160810
Misc : ICV
ALS Vial : 18 Sample Multiplier: 1

Quant Time: Aug 10 18:26:51 2016
Quant Method : C:\MSDCHEM\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration





TIC: 16081018.D\data.ms

(21) Benzo[b]fluoranthene (T)

24.881min (-0.028) 1988.28ug/kg

response 250418

Ion	Exp%	Act%
252.00	100	100
253.00	21.90	22.10
125.00	13.20	14.57
0.00	0.00	0.00

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160810\
Data File : 16081019.D
Acq On : 10 Aug 2016 6:34 pm
Operator :
Sample : SB-160810
Misc : SBLK
ALS Vial : 19 Sample Multiplier: 1

Quant Time: Aug 11 08:29:07 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	10.993	136	305327	4000.00	ug/kg	115
6) Acenaphthene-d10	13.454	164	237688	4000.00	ug/kg	147
11) Phenanthrene-d10	15.559	188	483433	4000.00	ug/kg	94
17) Chrysene-d12	21.430	240	428336	4000.00	ug/kg	93
20) Perylene-d12	26.636	264	426862	4000.00	ug/kg	102

System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.384	172	3	0.04	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 0.00%#			
15) 4-Terphenyl-d14	18.104	244	13	0.15	ug/kg	-0.02
Spiked Amount 4000.000	Range 50 - 135		Recovery = 0.00%#			

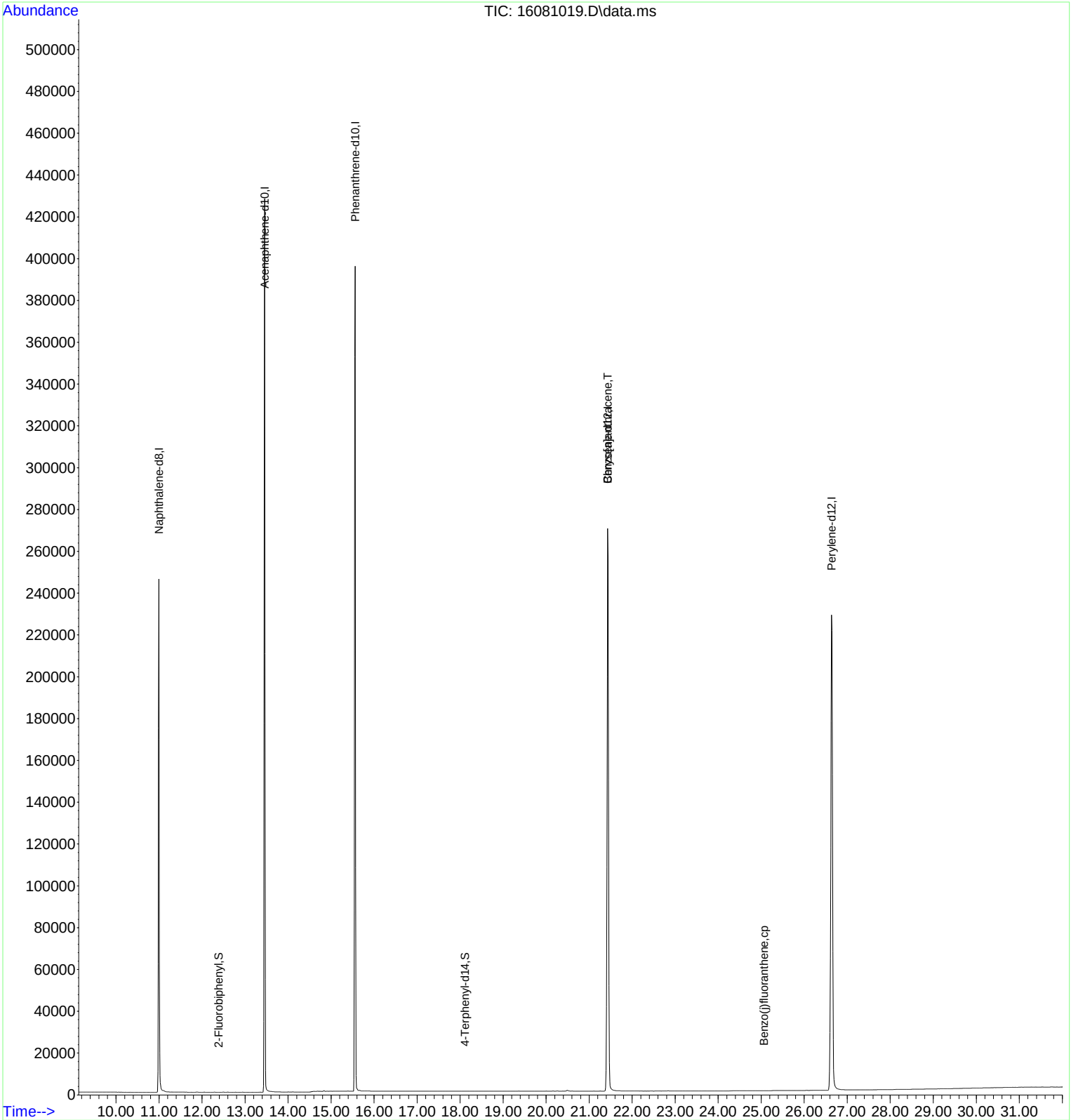
Target Compounds						Qvalue
18) Benzo[a]anthracene	21.430	228	1161	10.76	ug/kg	72
23) Benzo(j)fluoranthene	25.065	252	9	0.10	ug/kg#	1

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160810\
Data File : 16081019.D
Acq On : 10 Aug 2016 6:34 pm
Operator :
Sample : SB-160810
Misc : SBLK
ALS Vial : 19 Sample Multiplier: 1

Quant Time: Aug 11 08:29:07 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160810\
Data File : 16081020.D
Acq On : 10 Aug 2016 7:14 pm
Operator :
Sample : 1607337-22A
Misc : SAMP
ALS Vial : 20 Sample Multiplier: 10

Quant Time: Aug 11 08:47:37 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	10.994	136	316732	4000.00	ug/kg	120
6) Acenaphthene-d10	13.448	164	231512	4000.00	ug/kg	143
11) Phenanthrene-d10	15.557	188	493016	4000.00	ug/kg	96
17) Chrysene-d12	21.428	240	446448	4000.00	ug/kg	96
20) Perylene-d12	26.634	264	441513	4000.00	ug/kg	105

System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.377	172	5667	80.43	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 2.01%#			
15) 4-Terphenyl-d14	18.112	244	6360	73.38	ug/kg	-0.01
Spiked Amount 4000.000	Range 50 - 135		Recovery = 1.83%#			

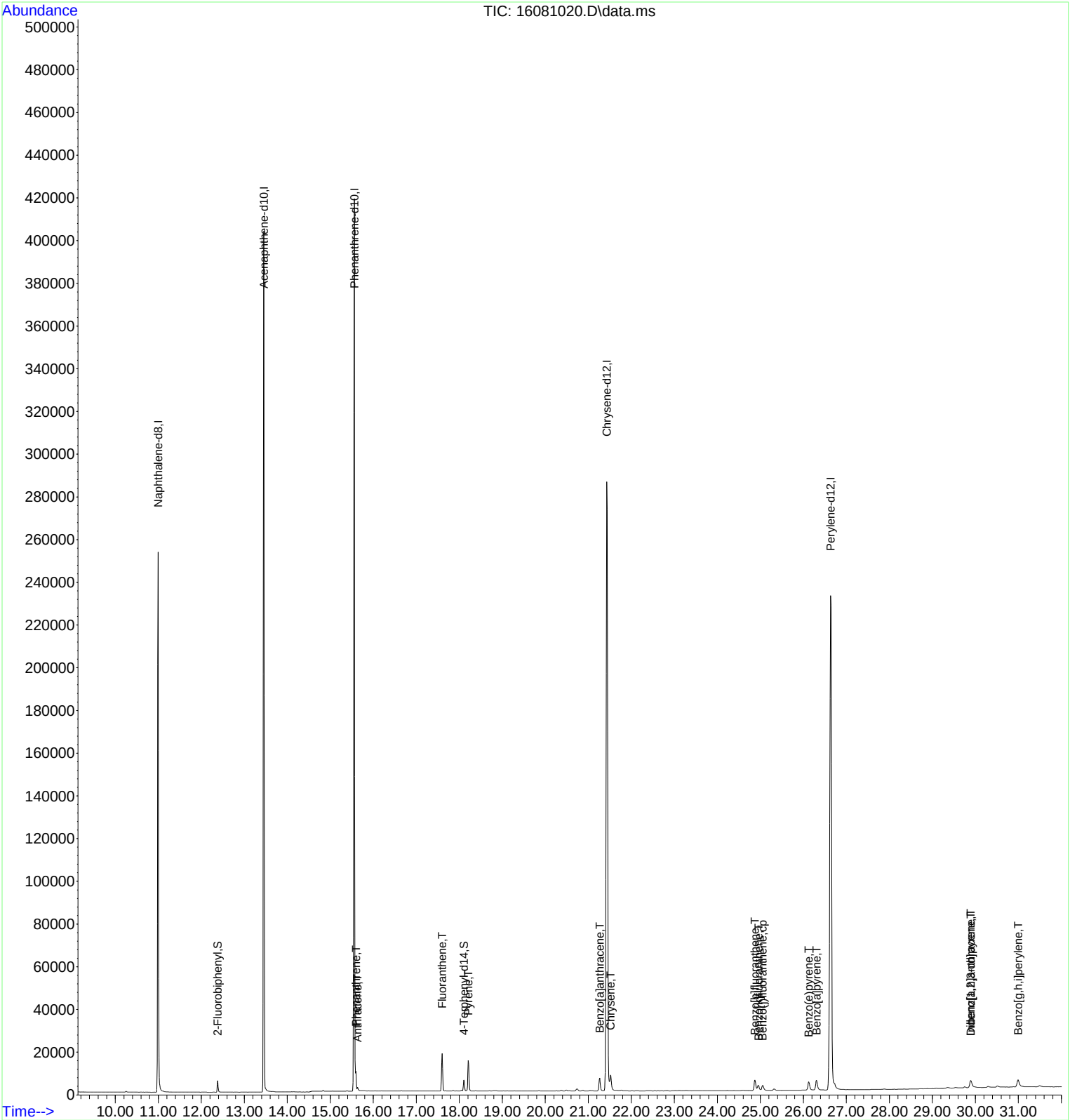
Target Compounds						Qvalue
12) Phenanthrene	15.596	178	8409	63.13	ug/kg	99
13) Anthracene	15.634	178	1186	9.22	ug/kg	98
14) Fluoranthene	17.601	202	19038	142.27	ug/kg	94
16) Pyrene	18.208	202	16548	123.68	ug/kg	98
18) Benzo[a]anthracene	21.264	228	8879	78.97	ug/kg	99
19) Chrysene	21.525	228	10075	94.67	ug/kg	99
21) Benzo[b]fluoranthene	24.870	252	10026	89.56	ug/kg	99
22) Benzo[k]fluoranthene	24.957	252	4012	43.02	ug/kg	93
23) Benzo(j)fluoranthene	25.053	252	4012	44.34	ug/kg	92
24) Benzo(e)pyrene	26.123	252	8034	72.12	ug/kg	97
25) Benzo[a]pyrene	26.306	252	10095	96.37	ug/kg	99
26) Indeno[1,2,3-cd]pyrene	29.893	276	7629	58.71	ug/kg	92
27) Dibenz[a,h]anthracene	29.883	278	1429	13.71	ug/kg	99
28) Benzo[g,h,i]perylene	30.992	276	8497	73.66	ug/kg	97

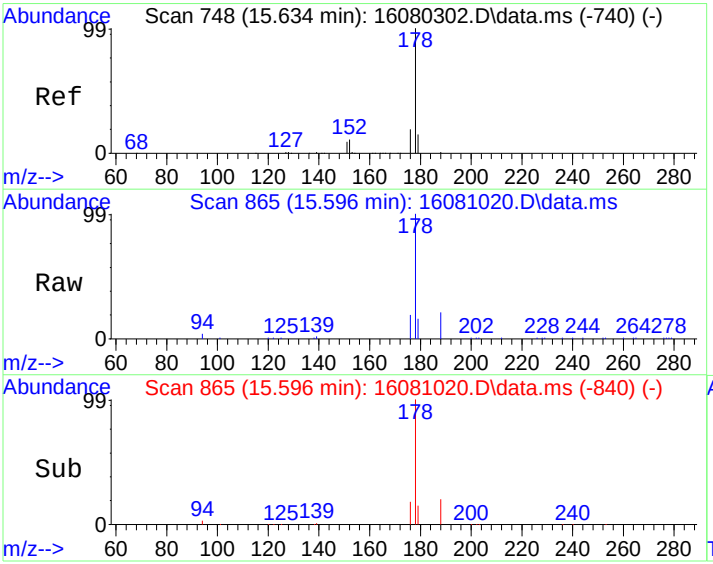
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160810\
Data File : 16081020.D
Acq On : 10 Aug 2016 7:14 pm
Operator :
Sample : 1607337-22A
Misc : SAMP
ALS Vial : 20 Sample Multiplier: 10

Quant Time: Aug 11 08:47:37 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration

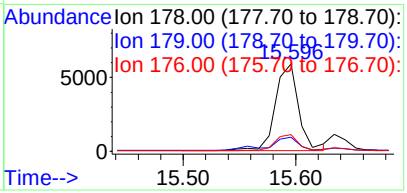


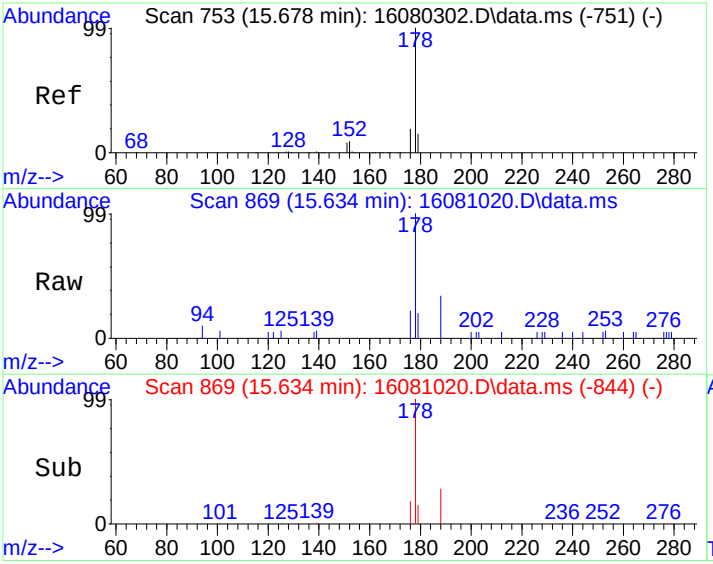


#12
Phenanthrene
Concen: 63.13 ug/kg
RT: 15.596 min Scan# 865
Delta R.T. -0.010 min
Lab File: 16081020.D
Acq: 10 Aug 2016 7:14 pm

Tgt Ion:178 Resp: 8409

Ion	Ratio	Lower	Upper
178	100		
179	15.3	0.0	35.7
176	18.5	0.0	38.8

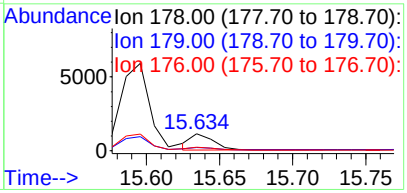


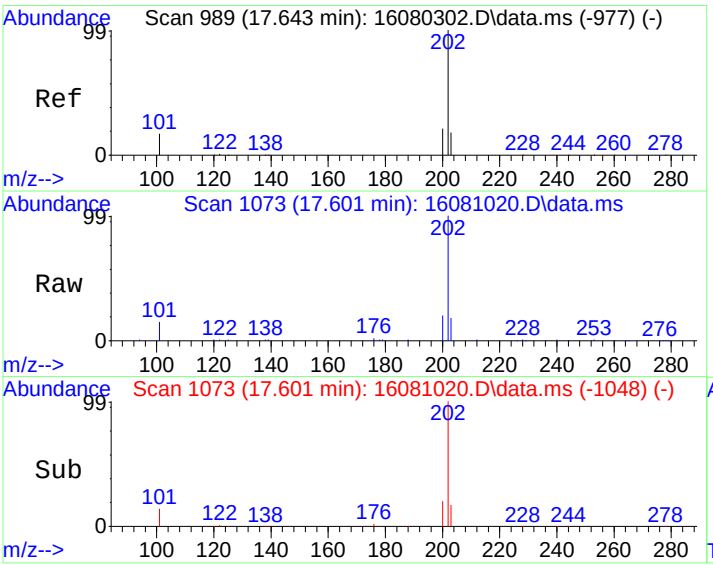


#13
Anthracene
Concen: 9.22 ug/kg
RT: 15.634 min Scan# 869
Delta R.T. -0.011 min
Lab File: 16081020.D
Acq: 10 Aug 2016 7:14 pm

Tgt Ion:178 Resp: 1186

Ion	Ratio	Lower	Upper
178	100		
179	14.8	0.0	35.5
176	18.0	0.0	38.7

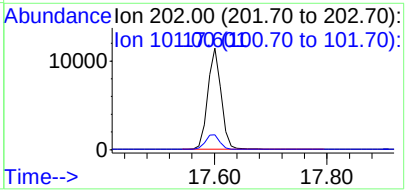


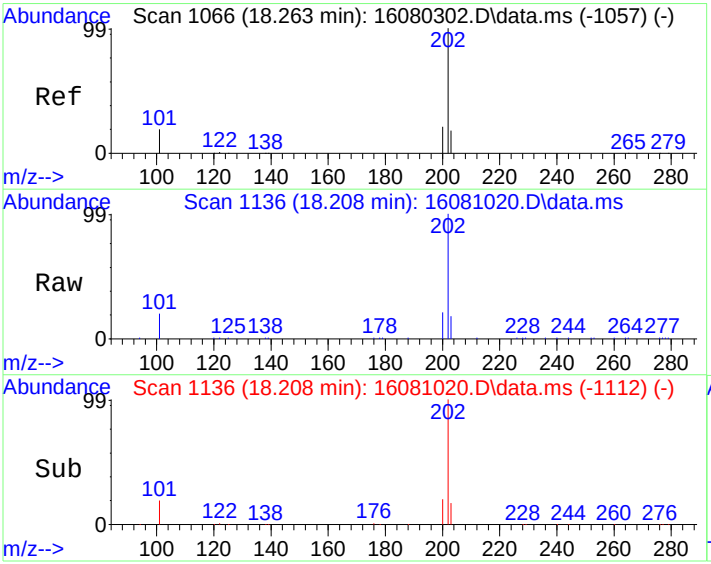


#14
Fluoranthene
Concen: 142.27 ug/kg
RT: 17.601 min Scan# 1073
Delta R.T. -0.011 min
Lab File: 16081020.D
Acq: 10 Aug 2016 7:14 pm

Tgt Ion:202 Resp: 19038

Ion	Ratio	Lower	Upper
202	100		
101	14.4	0.0	37.2

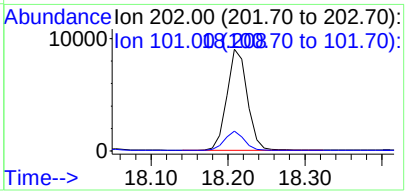


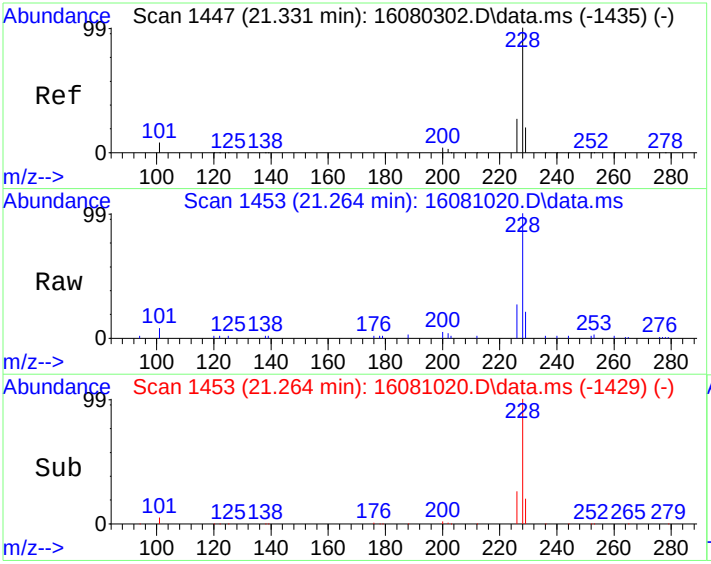


#16
Pyrene
Concen: 123.68 ug/kg
RT: 18.208 min Scan# 1136
Delta R.T. -0.020 min
Lab File: 16081020.D
Acq: 10 Aug 2016 7:14 pm

Tgt Ion:202 Resp: 16548

Ion	Ratio	Lower	Upper
202	100		
101	19.0	0.0	38.0

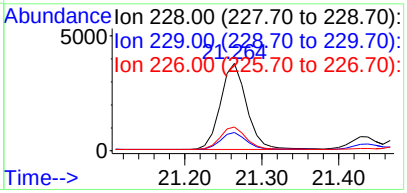


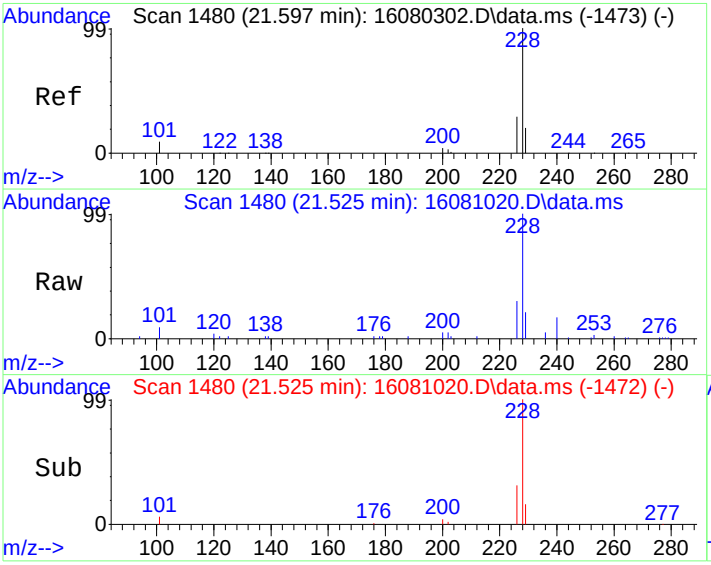


#18
Benzo[a]anthracene
Concen: 78.97 ug/kg
RT: 21.264 min Scan# 1453
Delta R.T. -0.020 min
Lab File: 16081020.D
Acq: 10 Aug 2016 7:14 pm

Tgt Ion:228 Resp: 8879

Ion	Ratio	Lower	Upper
228	100		
229	19.8	0.0	39.9
226	26.0	6.7	46.7

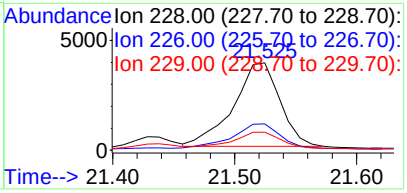


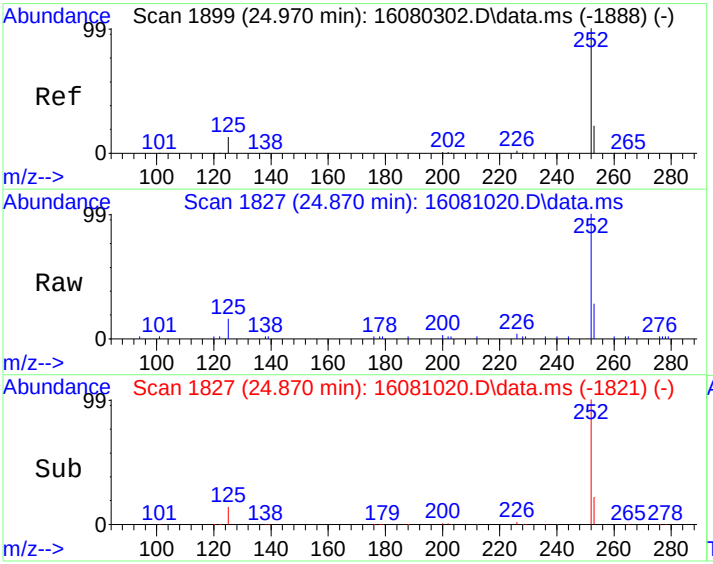


#19
Chrysene
Concen: 94.67 ug/kg
RT: 21.525 min Scan# 1480
Delta R.T. -0.020 min
Lab File: 16081020.D
Acq: 10 Aug 2016 7:14 pm

Tgt Ion:228 Resp: 10075

Ion	Ratio	Lower	Upper
228	100		
226	29.1	9.3	49.3
229	19.4	0.0	39.8

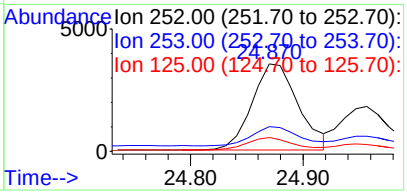


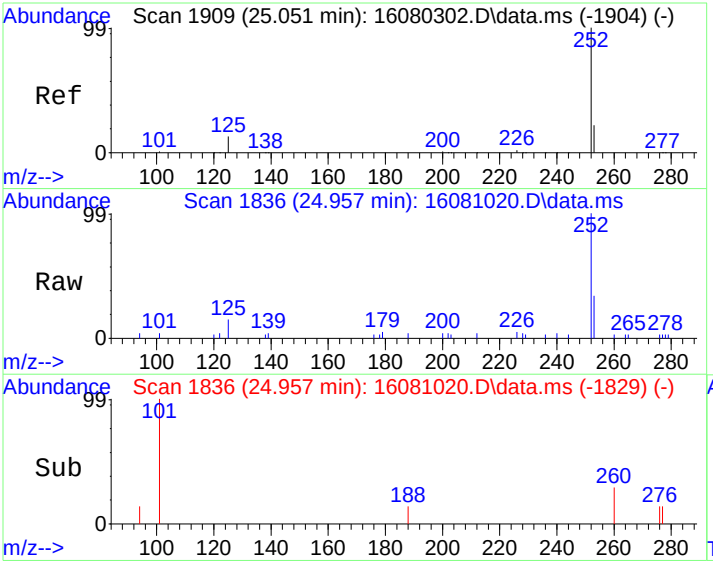


#21
Benzo[b]fluoranthene
Concen: 89.56 ug/kg
RT: 24.870 min Scan# 1827
Delta R.T. -0.040 min
Lab File: 16081020.D
Acq: 10 Aug 2016 7:14 pm

Tgt Ion:252 Resp: 10026

Ion	Ratio	Lower	Upper
252	100		
253	21.9	1.9	41.9
125	14.4	0.0	33.2

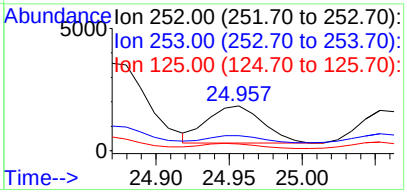


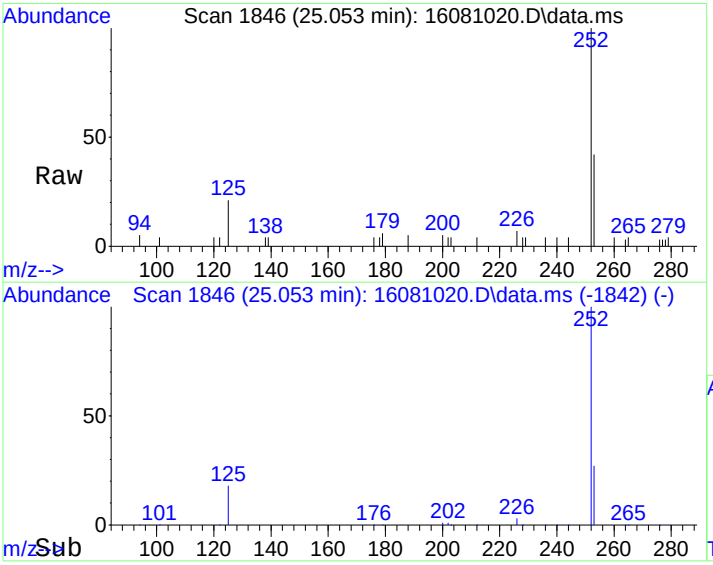


#22
Benzo[k]fluoranthene
Concen: 43.02 ug/kg
RT: 24.957 min Scan# 1836
Delta R.T. -0.030 min
Lab File: 16081020.D
Acq: 10 Aug 2016 7:14 pm

Tgt Ion:252 Resp: 4012

Ion	Ratio	Lower	Upper
252	100		
253	18.8	2.1	42.1
125	11.4	0.0	33.9

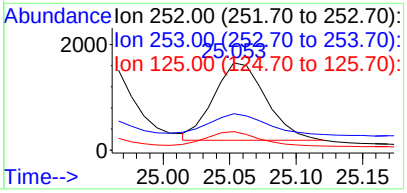


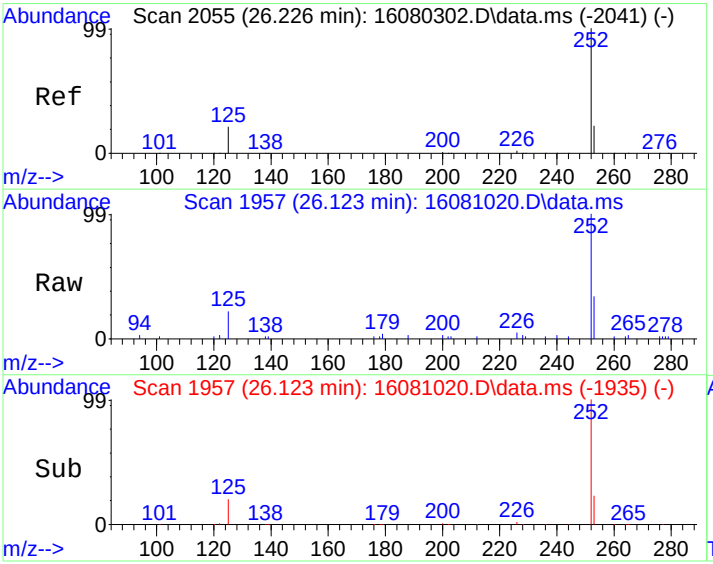


#23
Benzo(j)fluoranthene
Concen: 44.34 ug/kg
RT: 25.053 min Scan# 1846
Delta R.T. -0.040 min
Lab File: 16081020.D
Acq: 10 Aug 2016 7:14 pm

Tgt Ion:252 Resp: 4012

Ion	Ratio	Lower	Upper
252	100		
253	28.4	1.9	41.9
125	19.0	0.0	39.4

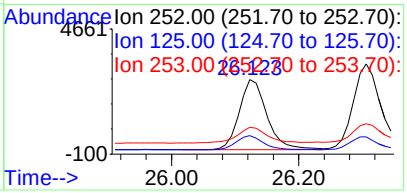


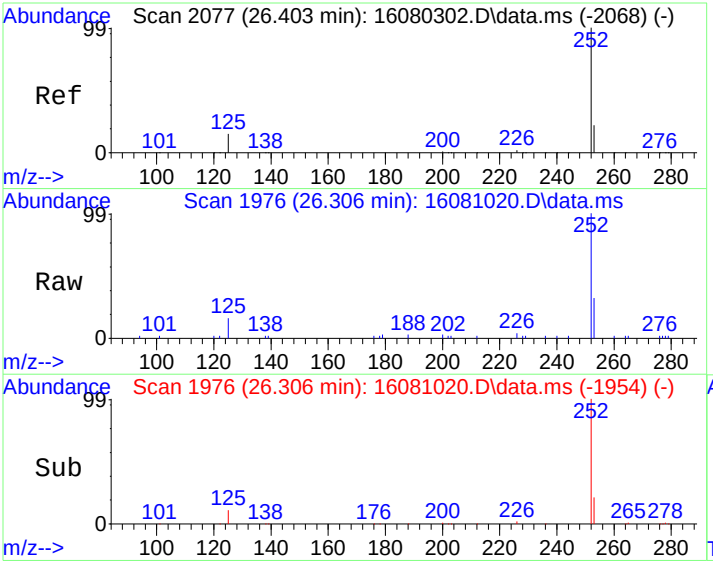


#24
Benzo(e)pyrene
Concen: 72.12 ug/kg
RT: 26.123 min Scan# 1957
Delta R.T. -0.040 min
Lab File: 16081020.D
Acq: 10 Aug 2016 7:14 pm

Tgt Ion:252 Resp: 8034

Ion	Ratio	Lower	Upper
252	100		
125	20.0	0.5	40.5
253	24.5	2.1	42.1

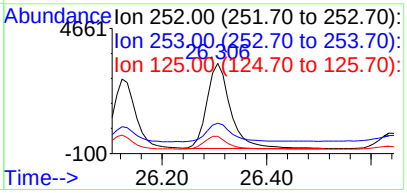


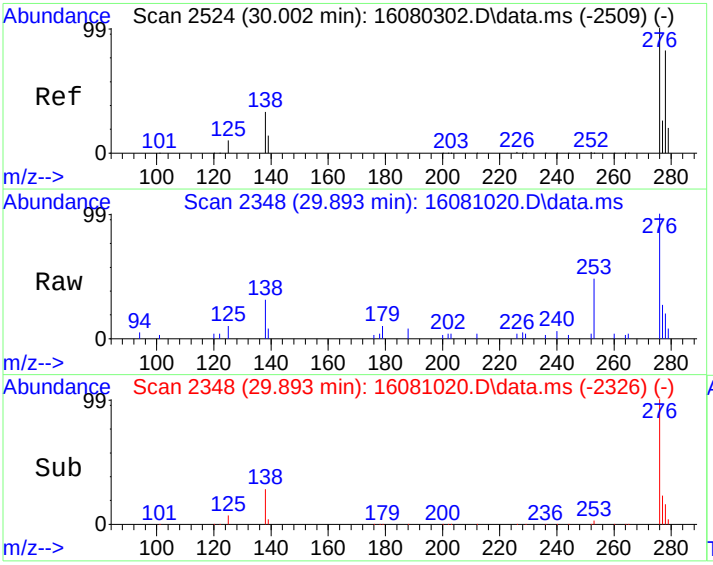


#25
Benzo[a]pyrene
Concen: 96.37 ug/kg
RT: 26.306 min Scan# 1976
Delta R.T. -0.040 min
Lab File: 16081020.D
Acq: 10 Aug 2016 7:14 pm

Tgt Ion:252 Resp: 10095

Ion	Ratio	Lower	Upper
252	100		
253	21.9	1.9	41.9
125	14.9	0.0	33.5

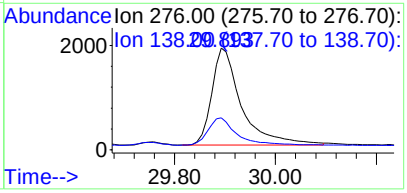


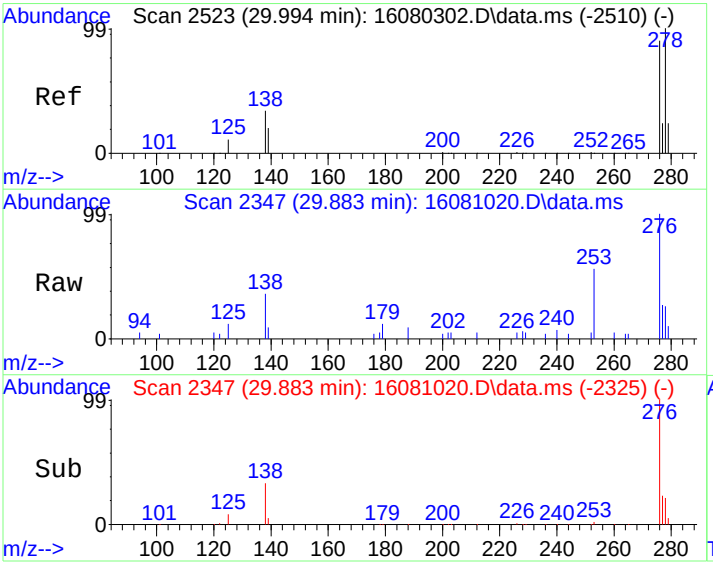


#26
Indeno[1,2,3-cd]pyrene
Concen: 58.71 ug/kg
RT: 29.893 min Scan# 2348
Delta R.T. -0.040 min
Lab File: 16081020.D
Acq: 10 Aug 2016 7:14 pm

Tgt Ion:276 Resp: 7629

Ion	Ratio	Lower	Upper
276	100		
138	28.0	12.2	52.2

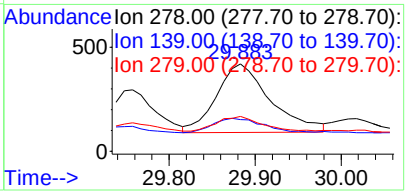


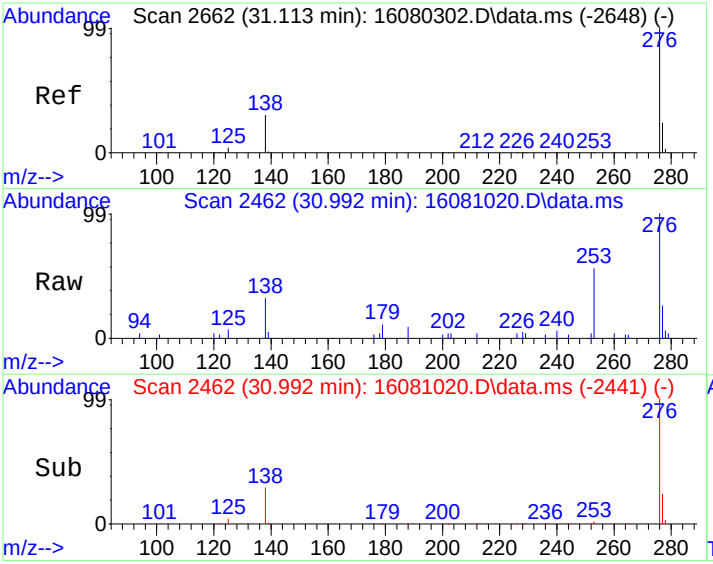


#27
Dibenz[a,h]anthracene
Concen: 13.71 ug/kg
RT: 29.883 min Scan# 2347
Delta R.T. -0.040 min
Lab File: 16081020.D
Acq: 10 Aug 2016 7:14 pm

Tgt Ion:278 Resp: 1429

Ion	Ratio	Lower	Upper
278	100		
139	20.5	0.2	40.2
279	23.5	3.9	43.9

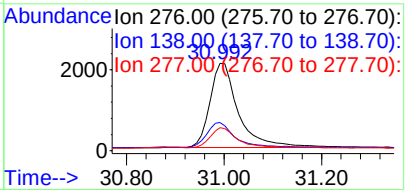




#28
Benzo[g,h,i]perylene
Concen: 73.66 ug/kg
RT: 30.992 min Scan# 2462
Delta R.T. -0.049 min
Lab File: 16081020.D
Acq: 10 Aug 2016 7:14 pm

Tgt Ion:276 Resp: 8497

Ion	Ratio	Lower	Upper
276	100		
138	29.3	6.9	46.9
277	23.7	3.9	43.9



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160810\
Data File : 16081021.D
Acq On : 10 Aug 2016 7:54 pm
Operator :
Sample : 1607337-23A
Misc : SAMP
ALS Vial : 21 Sample Multiplier: 10

Quant Time: Aug 11 08:47:45 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	10.993	136	323670	4000.00	ug/kg	122
6) Acenaphthene-d10	13.447	164	227371	4000.00	ug/kg	140
11) Phenanthrene-d10	15.558	188	497494	4000.00	ug/kg	97
17) Chrysene-d12	21.439	240	457856	4000.00	ug/kg	99
20) Perylene-d12	26.635	264	447952	4000.00	ug/kg	107

System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.376	172	5828	80.94	ug/kg	-0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery = 2.02%#			
15) 4-Terphenyl-d14	18.103	244	6831	78.10	ug/kg	-0.02
Spiked Amount 4000.000	Range 50 - 135		Recovery = 1.95%#			

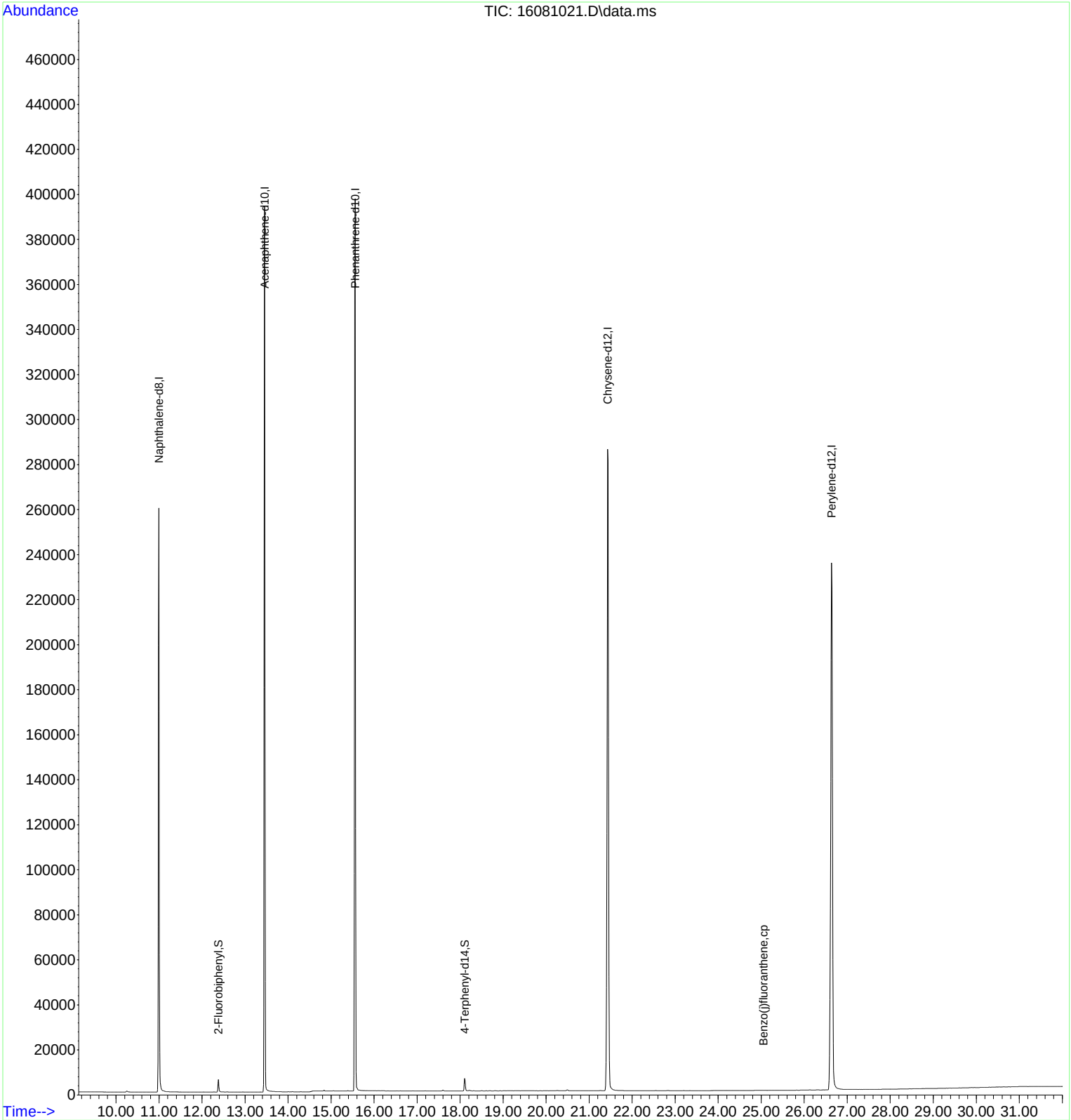
Target Compounds						Qvalue
23) Benzo(j)fluoranthene	25.054	252	91	0.99	ug/kg	74

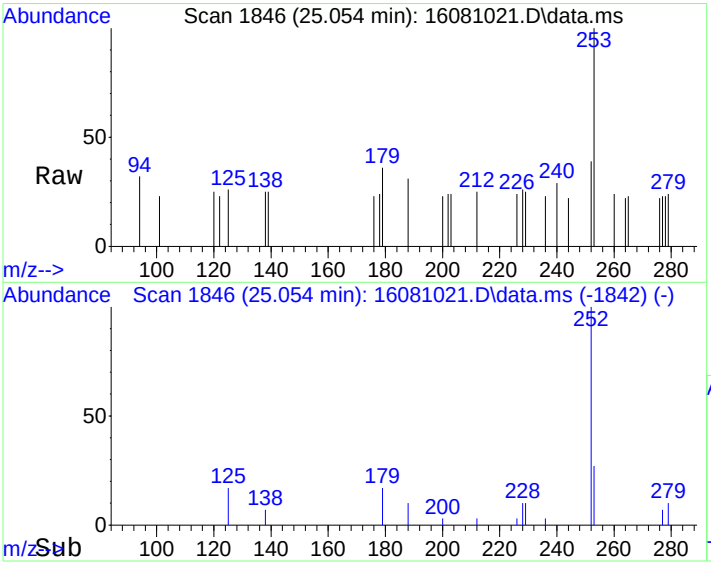
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160810\
Data File : 16081021.D
Acq On : 10 Aug 2016 7:54 pm
Operator :
Sample : 1607337-23A
Misc : SAMP
ALS Vial : 21 Sample Multiplier: 10

Quant Time: Aug 11 08:47:45 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration

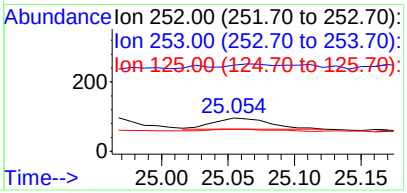




#23
Benzo(j)fluoranthene
Concen: 0.99 ug/kg
RT: 25.054 min Scan# 1846
Delta R.T. -0.038 min
Lab File: 16081021.D
Acq: 10 Aug 2016 7:54 pm

Tgt Ion:252 Resp: 91

Ion	Ratio	Lower	Upper
252	100		
253	39.6	1.9	41.9
125	25.3	0.0	39.4



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160810\
Data File : 16081022.D
Acq On : 10 Aug 2016 8:34 pm
Operator :
Sample : 1607337-24A
Misc : SAMP
ALS Vial : 22 Sample Multiplier: 10

Quant Time: Aug 11 08:47:49 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	10.988	136	323902	4000.00	ug/kg	122
6) Acenaphthene-d10	13.449	164	230405	4000.00	ug/kg	142
11) Phenanthrene-d10	15.558	188	489522	4000.00	ug/kg	95
17) Chrysene-d12	21.429	240	450262	4000.00	ug/kg	97
20) Perylene-d12	26.635	264	446224	4000.00	ug/kg	106

System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.378	172	5321	73.85	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 1.85%#			
15) 4-Terphenyl-d14	18.103	244	6058	70.39	ug/kg	-0.02
Spiked Amount 4000.000	Range 50 - 135		Recovery = 1.76%#			

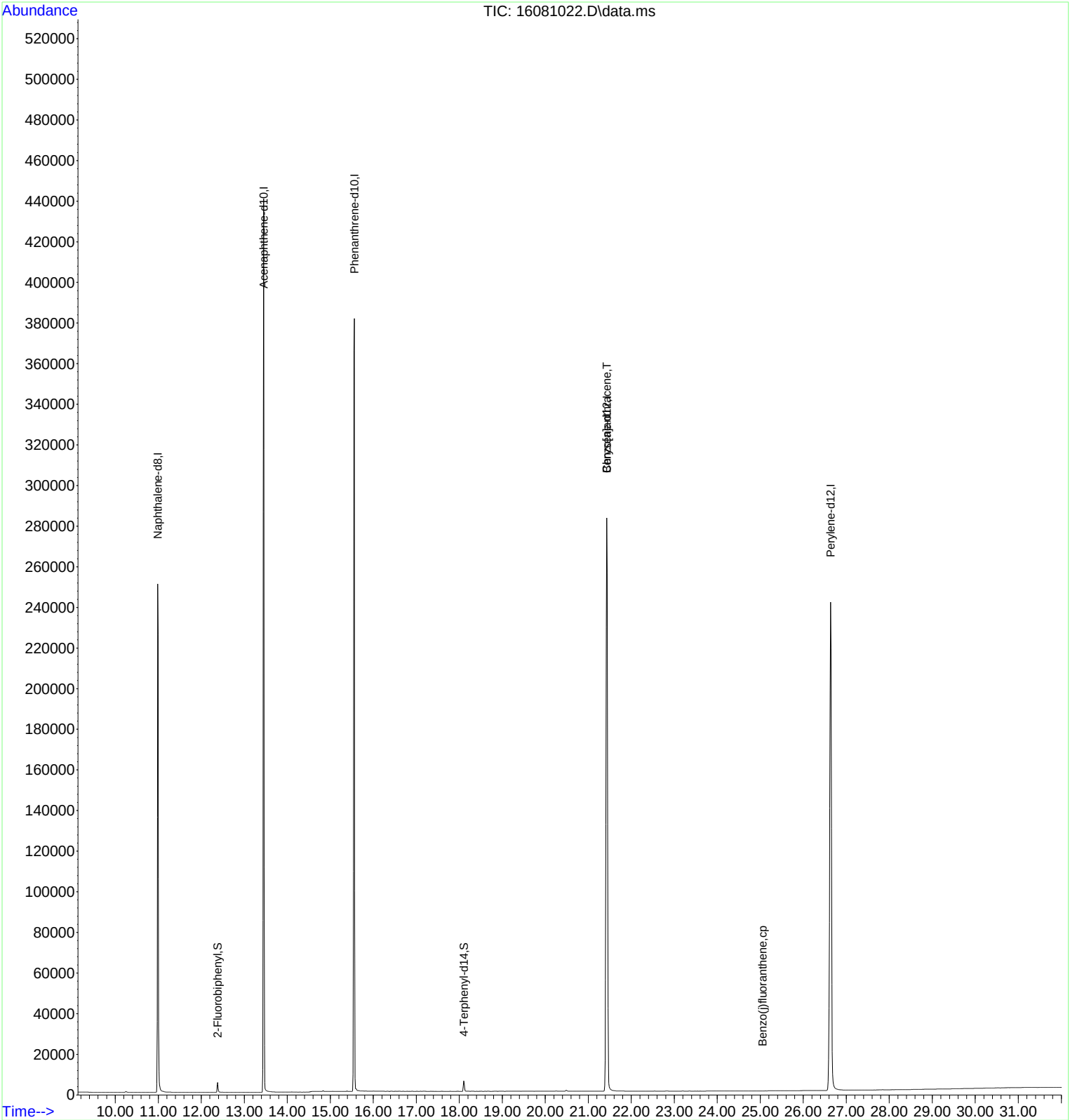
Target Compounds						Qvalue
18) Benzo[a]anthracene	21.429	228	1237	10.91	ug/kg	73
23) Benzo(j)fluoranthene	25.064	252	8	0.09	ug/kg#	1

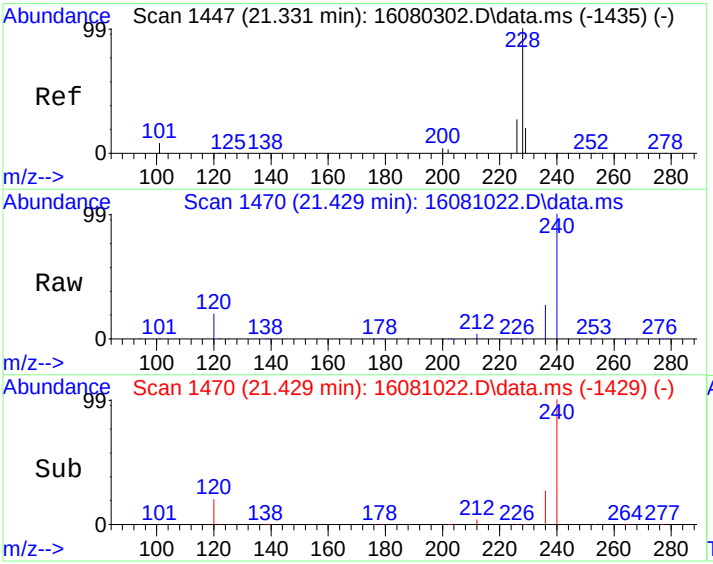
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160810\
Data File : 16081022.D
Acq On : 10 Aug 2016 8:34 pm
Operator :
Sample : 1607337-24A
Misc : SAMP
ALS Vial : 22 Sample Multiplier: 10

Quant Time: Aug 11 08:47:49 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration

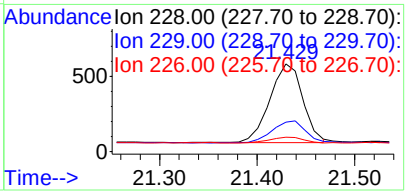


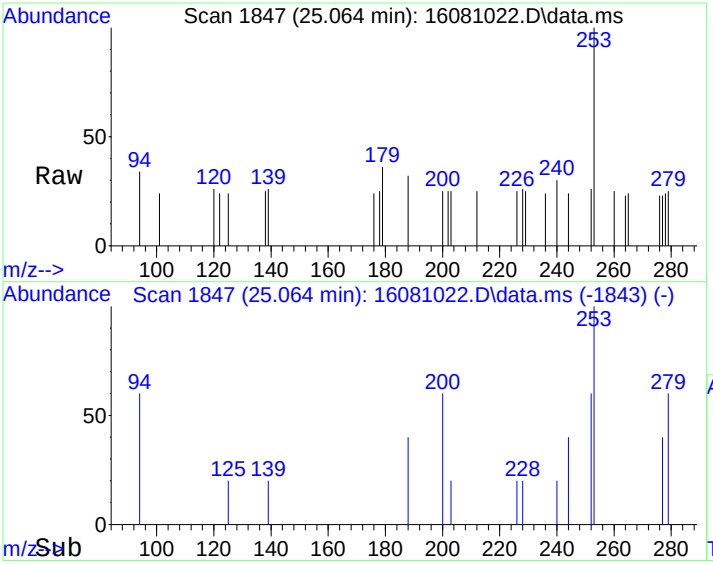


#18
Benzo[a]anthracene
Concen: 10.91 ug/kg
RT: 21.429 min Scan# 1470
Delta R.T. 0.145 min
Lab File: 16081022.D
Acq: 10 Aug 2016 8:34 pm

Tgt Ion:228 Resp: 1237

Ion	Ratio	Lower	Upper
228	100		
229	25.9	0.0	39.9
226	7.2	6.7	46.7

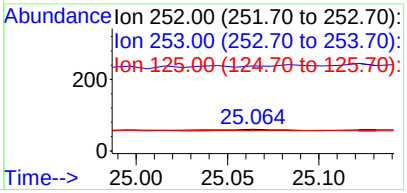




#23
Benzo(j)fluoranthene
Concen: 0.09 ug/kg
RT: 25.064 min Scan# 1847
Delta R.T. -0.029 min
Lab File: 16081022.D
Acq: 10 Aug 2016 8:34 pm

Tgt Ion:252 Resp: 8

Ion	Ratio	Lower	Upper
252	100		
253	162.5	1.9	41.9#
125	50.0	0.0	39.4#



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160810\
Data File : 16081023.D
Acq On : 10 Aug 2016 9:14 pm
Operator :
Sample : 1607337-25A
Misc : SAMP
ALS Vial : 23 Sample Multiplier: 10

Quant Time: Aug 11 08:47:53 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	10.987	136	314487	4000.00	ug/kg	119
6) Acenaphthene-d10	13.448	164	234606	4000.00	ug/kg	145
11) Phenanthrene-d10	15.559	188	488451	4000.00	ug/kg	95
17) Chrysene-d12	21.430	240	440384	4000.00	ug/kg	95
20) Perylene-d12	26.636	264	432838	4000.00	ug/kg	103

System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.377	172	5836	83.42	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 2.09%#			
15) 4-Terphenyl-d14	18.104	244	6502	75.72	ug/kg	-0.02
Spiked Amount 4000.000	Range 50 - 135		Recovery = 1.89%#			

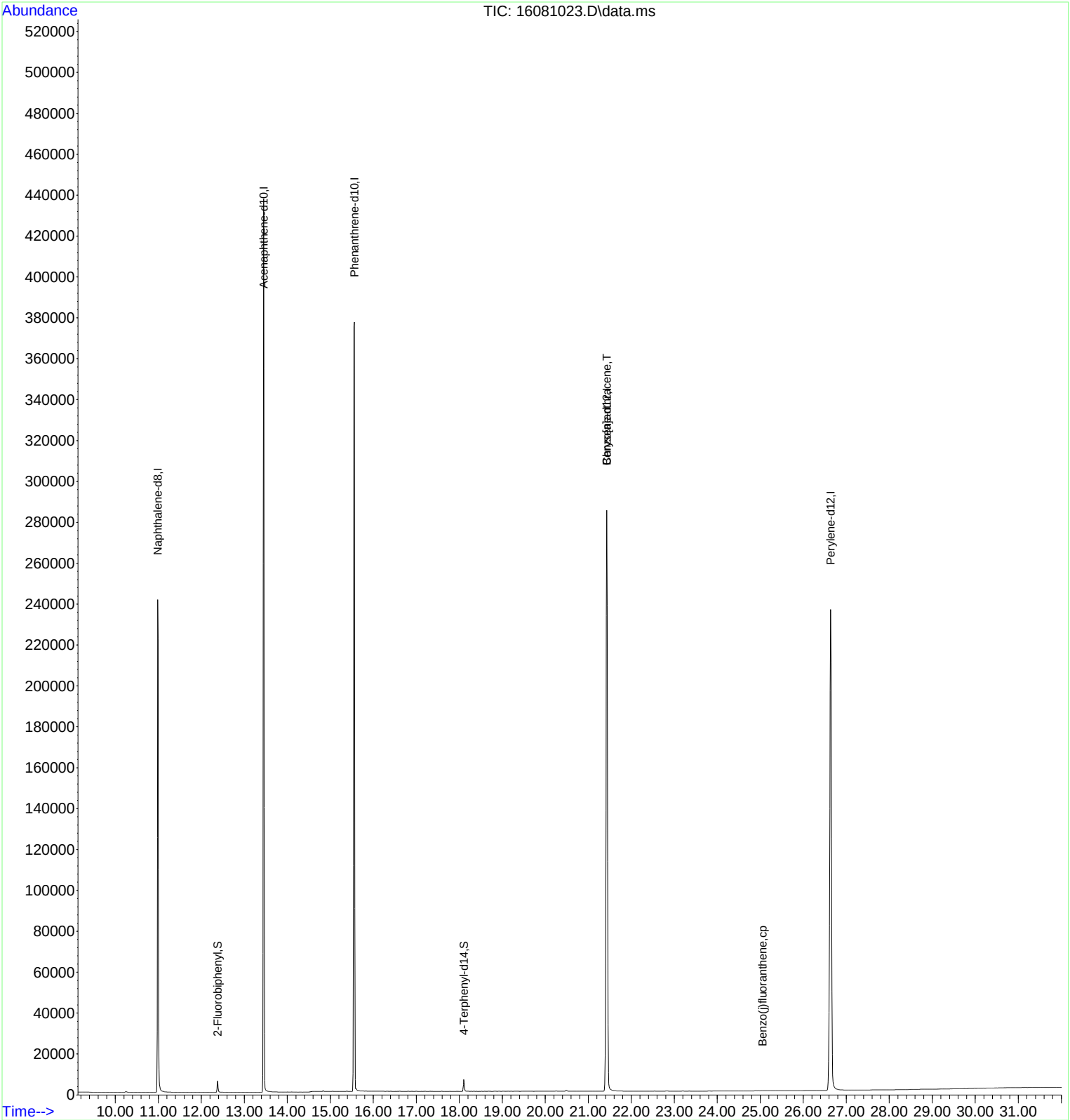
Target Compounds						Qvalue
18) Benzo[a]anthracene	21.430	228	1198	10.80	ug/kg	73
23) Benzo(j)fluoranthene	25.045	252	9	0.10	ug/kg#	1

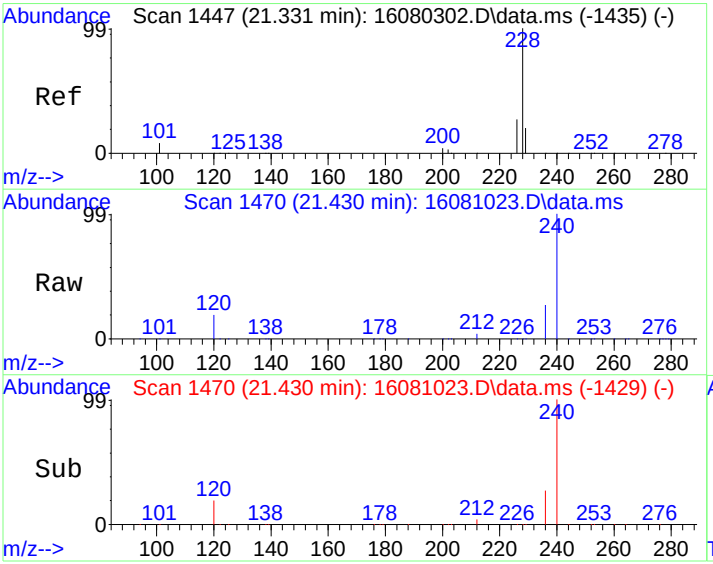
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160810\
Data File : 16081023.D
Acq On : 10 Aug 2016 9:14 pm
Operator :
Sample : 1607337-25A
Misc : SAMP
ALS Vial : 23 Sample Multiplier: 10

Quant Time: Aug 11 08:47:53 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration

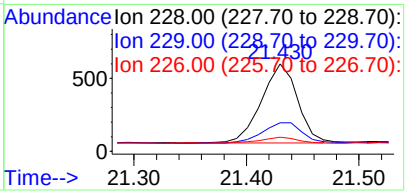


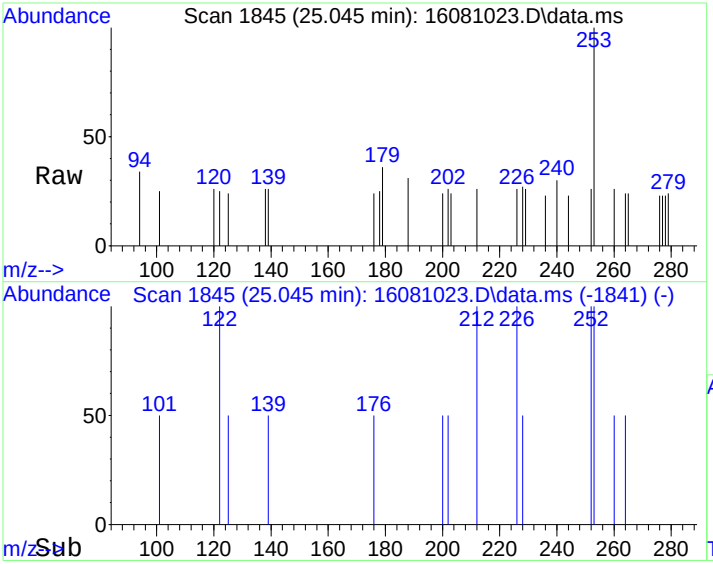


#18
Benzo[a]anthracene
Concen: 10.80 ug/kg
RT: 21.430 min Scan# 1470
Delta R.T. 0.145 min
Lab File: 16081023.D
Acq: 10 Aug 2016 9:14 pm

Tgt Ion:228 Resp: 1198

Ion	Ratio	Lower	Upper
228	100		
229	25.7	0.0	39.9
226	7.6	6.7	46.7

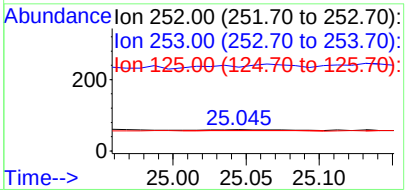




#23
Benzo(j)fluoranthene
Concen: 0.10 ug/kg
RT: 25.045 min Scan# 1845
Delta R.T. -0.048 min
Lab File: 16081023.D
Acq: 10 Aug 2016 9:14 pm

Tgt Ion:252 Resp: 9

Ion	Ratio	Lower	Upper
252	100		
253	522.2	1.9	41.9#
125	11.1	0.0	39.4



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160810\
Data File : 16081024.D
Acq On : 10 Aug 2016 9:54 pm
Operator :
Sample : 1607337-10AMS
Misc : MS
ALS Vial : 24 Sample Multiplier: 10

Quant Time: Aug 11 08:45:49 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration

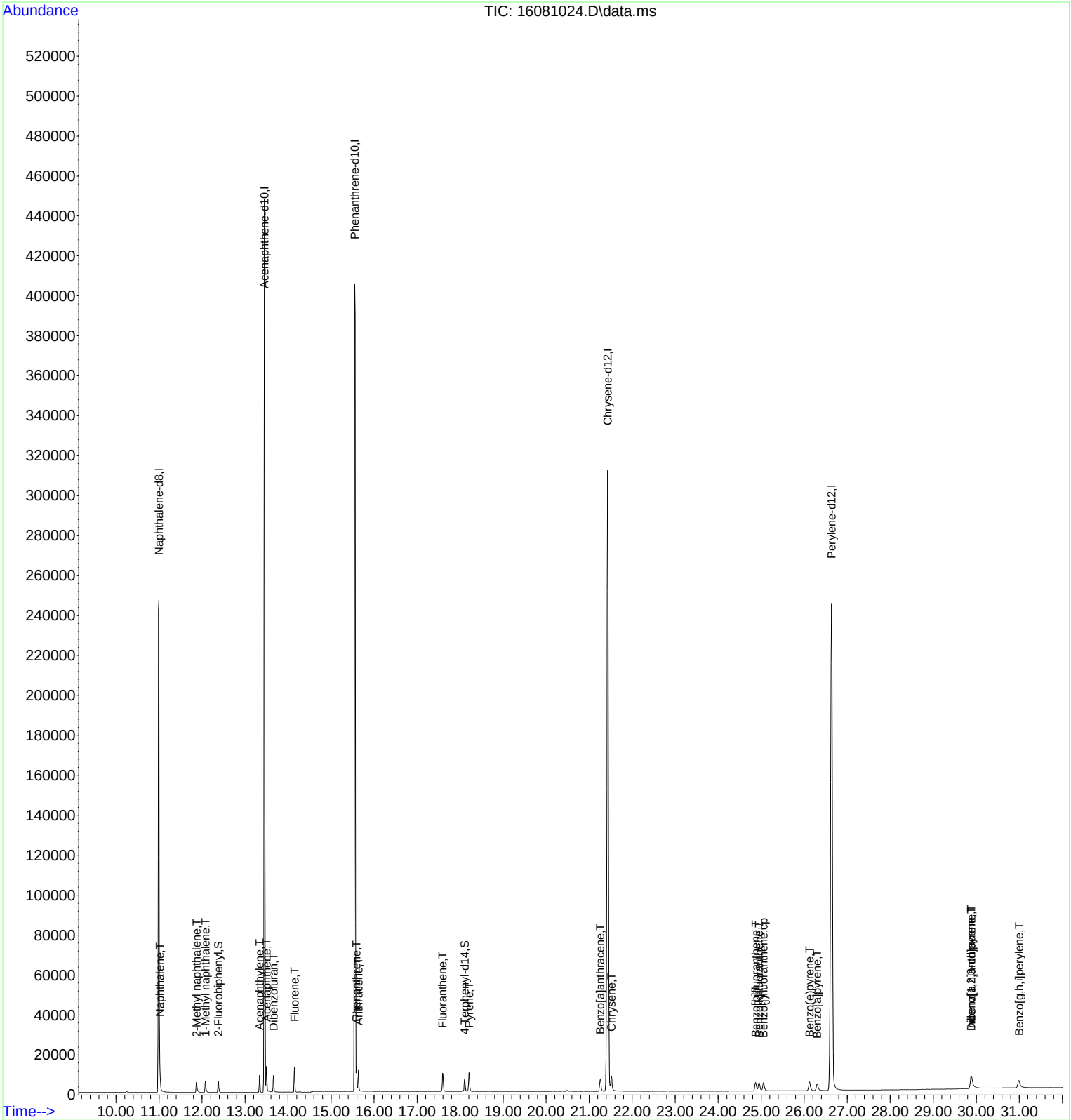
Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	10.993	136	330921	4000.00	ug/kg	125
6) Acenaphthene-d10	13.447	164	236139	4000.00	ug/kg	146
11) Phenanthrene-d10	15.558	188	516005	4000.00	ug/kg	100
17) Chrysene-d12	21.429	240	480747	4000.00	ug/kg	104
20) Perylene-d12	26.635	264	471180	4000.00	ug/kg	112
System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.376	172	5952	80.85	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 2.02%#			
15) 4-Terphenyl-d14	18.103	244	7030	77.49	ug/kg	-0.02
Spiked Amount 4000.000	Range 50 - 135		Recovery = 1.94%#			
Target Compounds						Qvalue
2) Naphthalene	11.022	128	5577	70.65	ug/kg	100
3) 2-Methyl naphthalene	11.873	142	4272	79.39	ug/kg	97
4) 1-Methyl naphthalene	12.078	142	3985	80.56	ug/kg	100
7) Acenaphthylene	13.334	152	8374	76.65	ug/kg	100
8) Acenaphthene	13.497	153	5382	75.38	ug/kg	98
9) Dibenzofuran	13.660	168	8164	66.62	ug/kg	97
10) Fluorene	14.149	166	6865	64.78	ug/kg	99
12) Phenanthrene	15.587	178	11233	81.24	ug/kg	99
13) Anthracene	15.635	178	9284	68.93	ug/kg	99
14) Fluoranthene	17.592	202	10570	75.47	ug/kg	100
16) Pyrene	18.209	202	10659	76.12	ug/kg	98
18) Benzo[a]anthracene	21.256	228	8856	73.14	ug/kg	99
19) Chrysene	21.516	228	8493	74.11	ug/kg	99
21) Benzo[b]fluoranthene	24.871	252	8459	70.81	ug/kg	99
22) Benzo[k]fluoranthene	24.948	252	6765	67.98	ug/kg	100
23) Benzo(j)fluoranthene	25.054	252	7199	74.56	ug/kg	99
24) Benzo(e)pyrene	26.124	252	8989	75.61	ug/kg	98
25) Benzo[a]pyrene	26.298	252	7895	70.62	ug/kg	98
26) Indeno[1,2,3-cd]pyrene	29.894	276	10183	73.43	ug/kg	94
27) Dibenz[a,h]anthracene	29.874	278	7724	69.46	ug/kg	97
28) Benzo[g,h,i]perylene	30.993	276	9230	74.97	ug/kg	99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160810\
Data File : 16081024.D
Acq On : 10 Aug 2016 9:54 pm
Operator :
Sample : 1607337-10AMS
Misc : MS
ALS Vial : 24 Sample Multiplier: 10

Quant Time: Aug 11 08:45:49 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160810\
Data File : 16081025.D
Acq On : 10 Aug 2016 10:34 pm
Operator :
Sample : 1607337-10AMSD
Misc : MSD
ALS Vial : 25 Sample Multiplier: 10

Quant Time: Aug 11 08:45:52 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	10.990	136	329158	4000.00	ug/kg	124
6) Acenaphthene-d10	13.451	164	228072	4000.00	ug/kg	141
11) Phenanthrene-d10	15.549	188	492140	4000.00	ug/kg	96
17) Chrysene-d12	21.429	240	464361	4000.00	ug/kg	100
20) Perylene-d12	26.635	264	453464	4000.00	ug/kg	108

System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.373	172	5741	78.40	ug/kg	-0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery = 1.96%#			
15) 4-Terphenyl-d14	18.103	244	6730	77.78	ug/kg	-0.02
Spiked Amount 4000.000	Range 50 - 135		Recovery = 1.94%#			

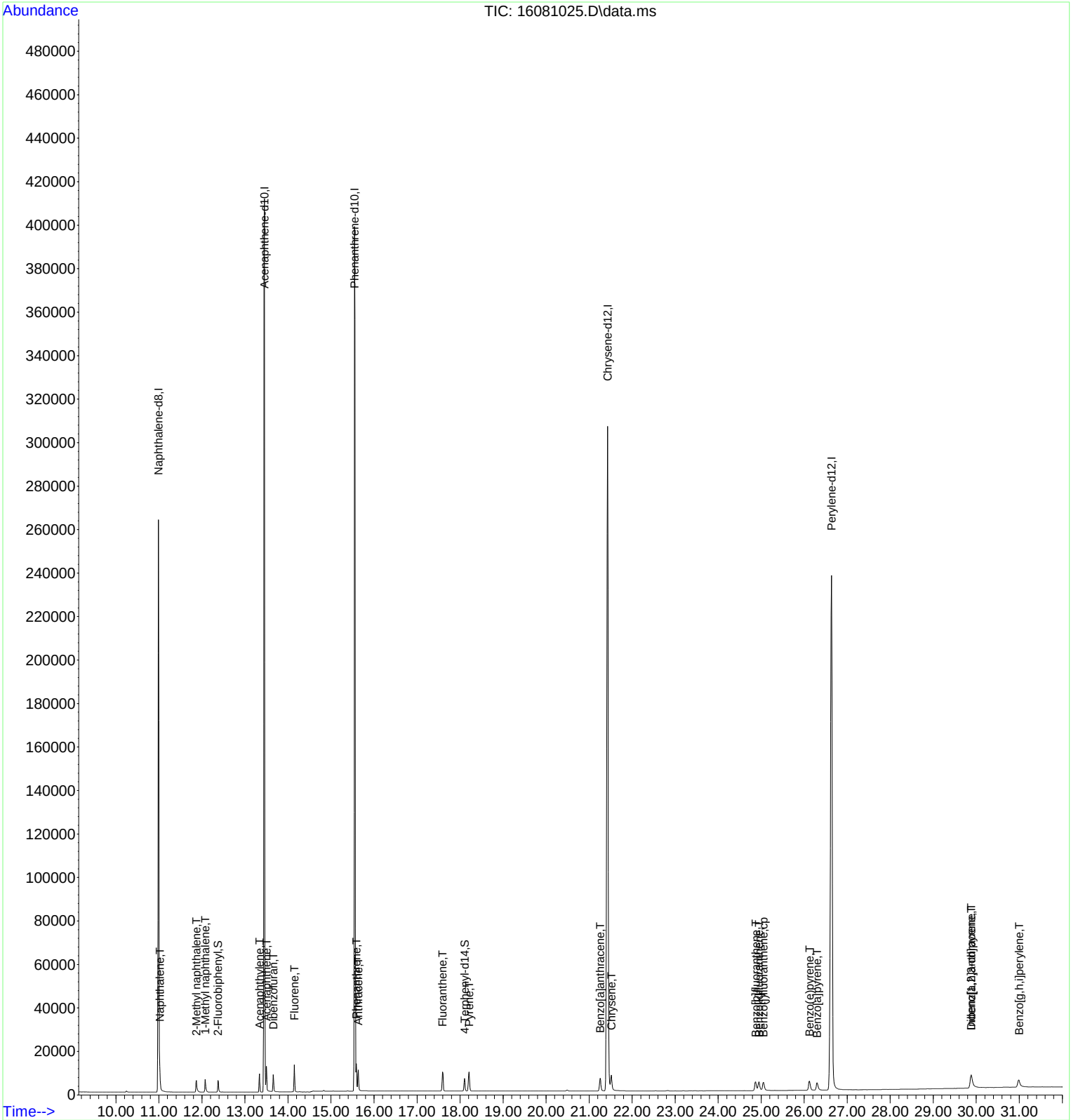
Target Compounds						Qvalue
2) Naphthalene	11.026	128	5800	73.87	ug/kg	99
3) 2-Methyl naphthalene	11.870	142	4317	80.66	ug/kg	98
4) 1-Methyl naphthalene	12.075	142	4040	82.11	ug/kg	98
7) Acenaphthylene	13.338	152	8189	77.61	ug/kg	99
8) Acenaphthene	13.501	153	5312	77.03	ug/kg	99
9) Dibenzofuran	13.657	168	7897	66.72	ug/kg	96
10) Fluorene	14.146	166	6591	64.40	ug/kg	100
12) Phenanthrene	15.587	178	10360	78.48	ug/kg	99
13) Anthracene	15.635	178	9321	72.56	ug/kg	99
14) Fluoranthene	17.592	202	10310	77.18	ug/kg	100
16) Pyrene	18.209	202	10296	77.09	ug/kg	98
18) Benzo[a]anthracene	21.256	228	8661	74.06	ug/kg	99
19) Chrysene	21.516	228	8294	74.93	ug/kg	100
21) Benzo[b]fluoranthene	24.871	252	8230	71.58	ug/kg	99
22) Benzo[k]fluoranthene	24.948	252	6476	67.62	ug/kg	98
23) Benzo(j)fluoranthene	25.054	252	6866	73.89	ug/kg	99
24) Benzo(e)pyrene	26.124	252	8766	76.62	ug/kg	98
25) Benzo[a]pyrene	26.298	252	7624	70.86	ug/kg	98
26) Indeno[1,2,3-cd]pyrene	29.884	276	9791	73.36	ug/kg	99
27) Dibenz[a,h]anthracene	29.874	278	7418	69.31	ug/kg	99
28) Benzo[g,h,i]perylene	30.993	276	8852	74.71	ug/kg	99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160810\
Data File : 16081025.D
Acq On : 10 Aug 2016 10:34 pm
Operator :
Sample : 1607337-10AMSD
Misc : MSD
ALS Vial : 25 Sample Multiplier: 10

Quant Time: Aug 11 08:45:52 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160810\
Data File : 16081026.D
Acq On : 10 Aug 2016 11:13 pm
Operator :
Sample : CCV1-160810
Misc : CCV
ALS Vial : 26 Sample Multiplier: 1

Quant Time: Aug 11 08:29:16 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration

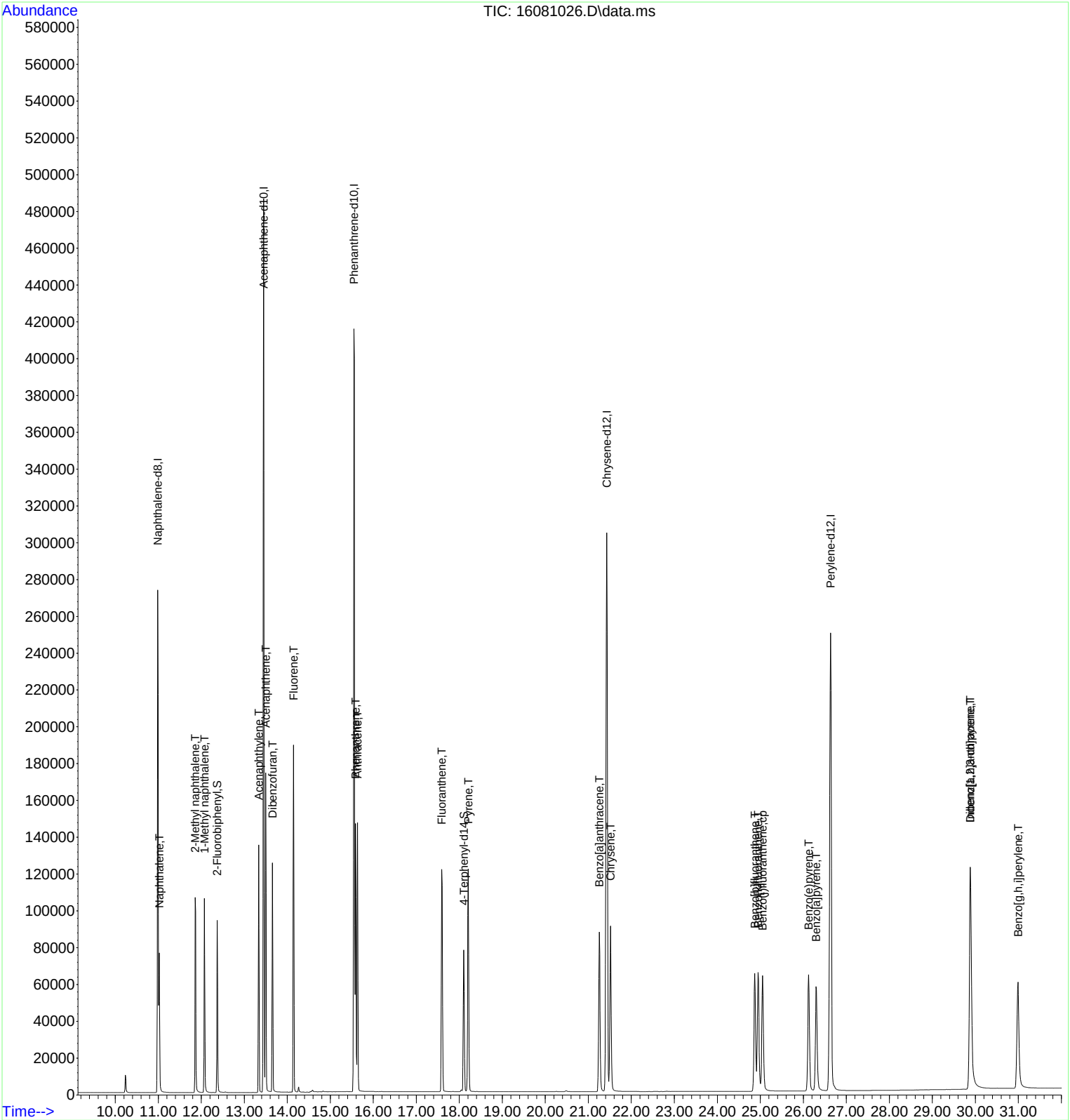
Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	10.987	136	339828	4000.00	ug/kg	128
6) Acenaphthene-d10	13.448	164	252625	4000.00	ug/kg	156
11) Phenanthrene-d10	15.557	188	526543	4000.00	ug/kg	102
17) Chrysene-d12	21.428	240	473011	4000.00	ug/kg	102
20) Perylene-d12	26.634	264	470127	4000.00	ug/kg	112
System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.370	172	76879	1016.93	ug/kg	-0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery = 25.42%#			
15) 4-Terphenyl-d14	18.102	244	85156	919.91	ug/kg	-0.02
Spiked Amount 4000.000	Range 50 - 135		Recovery = 23.00%#			
Target Compounds						Qvalue
2) Naphthalene	11.022	128	78350	966.55	ug/kg	100
3) 2-Methyl naphthalene	11.859	142	61823	1118.86	ug/kg	98
4) 1-Methyl naphthalene	12.072	142	57524	1132.42	ug/kg	98
7) Acenaphthylene	13.335	152	121807	1042.19	ug/kg	100
8) Acenaphthene	13.498	153	76397	1000.20	ug/kg	99
9) Dibenzofuran	13.654	168	112306	856.64	ug/kg	97
10) Fluorene	14.143	166	96066	847.39	ug/kg	99
12) Phenanthrene	15.586	178	140352	1033.34	ug/kg	99
13) Anthracene	15.634	178	129104	939.34	ug/kg	99
14) Fluoranthene	17.591	202	134500	941.09	ug/kg	99
16) Pyrene	18.208	202	134737	942.93	ug/kg	97
18) Benzo[a]anthracene	21.255	228	118477	994.51	ug/kg	100
19) Chrysene	21.515	228	113653	1007.97	ug/kg	100
21) Benzo[b]fluoranthene	24.870	252	117223	983.43	ug/kg	100
22) Benzo[k]fluoranthene	24.947	252	106017	1067.71	ug/kg	99
23) Benzo(j)fluoranthene	25.053	252	103531	1074.62	ug/kg	99
24) Benzo(e)pyrene	26.123	252	116880	985.37	ug/kg	100
25) Benzo[a]pyrene	26.297	252	113470	1017.26	ug/kg	97
26) Indeno[1,2,3-cd]pyrene	29.892	276	144283	1042.72	ug/kg	96
27) Dibenz[a,h]anthracene	29.883	278	117336	1057.51	ug/kg	99
28) Benzo[g,h,i]perylene	30.991	276	123629	1006.45	ug/kg	99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160810\
Data File : 16081026.D
Acq On : 10 Aug 2016 11:13 pm
Operator :
Sample : CCV1-160810
Misc : CCV
ALS Vial : 26 Sample Multiplier: 1

Quant Time: Aug 11 08:29:16 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration



GCMS8
Calibration Curve
For

DHL Work Order
1607337

CAL ID: 681

Method 8270 PAH Calibration Curve Sheet

Instrument ID: GCMS #6 **Calibration File Name:** PAH160802.CAL

Target Concentration	Solvent Amount mL	Standard Preparation Stocks and Surrogate (µL/mL)	Final Volume mL
5 ppb	0.999	0.001 mL of 5000 ppb	1
10 ppb	0.998	0.002 mL of 5000 ppb	1
50 ppb	0.990	0.01 mL of 5000 ppb	1
100 ppb	0.980	0.02 mL of 5000 ppb	1
500 ppb	0.900	0.10 mL of 5000 ppb	1
1000 ppb	0.800	0.20 mL of 5000 ppb	1
2000 ppb	0.600	0.40 mL of 5000 ppb	1
5000 ppb	----	PAHCAL160801	10
SSCV 2500 ppb	0.500	0.50 mL of PAHSSCV160725	1
SSCV 2500 ppb	----	PAHSSCV160801-1	1

Standards Used for the Calibration Curve

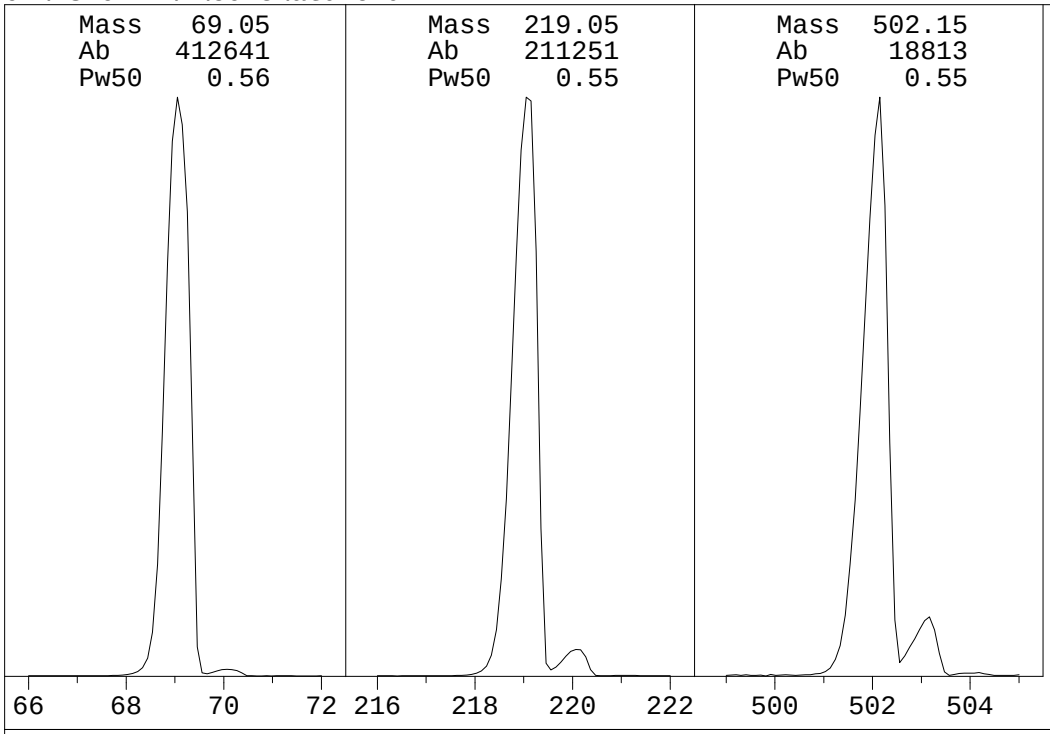
Primary Stock STDs	DHL Standard ID	Second Source (SS) Stock STDs	DHL Standard ID
5 PPM (5000 PPB) PAH CAL STD	**PAHCAL160801**	5PPM (5000PPB) PAH SSCV STD	**PAHSSCV160725**
		2.5PPM (2500PPB) PAH SSCV STD	**PAHSSCV160801-1**

Review Item	Acceptance Criteria	Yes	No	N/A	2nd Level Review
1. Are all standards within expiration dates?	Primary Stocks = 1 year Intermediate Standards = 6 months	X			X
2. Are all manual integrations listed on MI tracking form? **(DoD Projects only)**	Manual Integration Tracking Form			X	
3. Does the tune and resolution check meet criteria?	Benzo(b) / Benzo(k)phenanthrene Valley > 50% See Tune Eval Report	X			
4. Does the ICAL curve meet criteria? Use average CF only if %RSD < 15%	%RSD < 15% COD ≥ 0.990	X			
5. Has the low point been reprocessed under the new ICAL curve and meets criteria?	70-130% recovery	X			
6. Has the SSCV been analyzed and meets criteria?	80-120% recovery	X			

Analyst: Karyn Lane Date: 08/3/2016

Second-Level Review: Date: 08/10/2016

Tue Aug 02 16:40:26 2016 Instrument: GCMS #8
C:\MSDCHEM\1\5973\atune.u

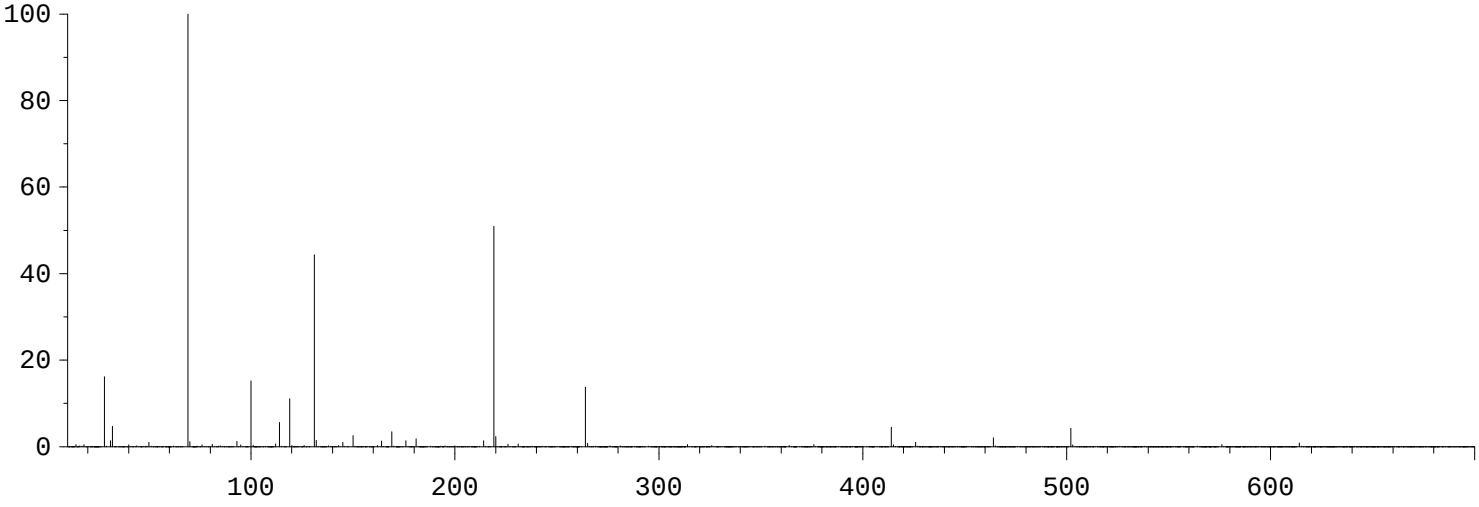


Ion Pol	POS	MassGain	45
		MassOffs	-11
Emission	34.6	AmuGain	2075
EIEnrgy	69.9	AmuOffs	135
Filament	1	Wid219	-0.002
		DC Pol	NEG
Repeller	31.46		
IonFcus	100.6	HEDEnab	ON
EntLens	14.5	EMVolts	1259
EntOffs	22.09		
		Samples	8
PFTBA	OPEN	Averages	3
		Stepsize	0.10

Zones:

MS Source	230	Foreline	40
MS Quad	150		

Scan: 10.00 - 700.00 Samples: 8 Thresh: 0 Step: 0.10
1041 peaks Base: 69.05 Abundance: 374592



Mass	Abund	Rel Abund	Iso Mass	Iso Abund	Iso Ratio
69.05	374592	100.00	70.05	4356	1.16
219.05	190784	50.93	220.05	8742	4.58
502.05	16013	4.27	503.05	1583	9.89

Air/Water Check: H20~0.52% N2~16.18% O2~4.70% CO2~0.16% N2/H2O~3118.48%

Column Flow: Front: 0 Back: 0 ml/min. Interface Temp: 310

Ramp Criteria:
Ion Focus Maximum 125 volts using ion 219; EM Gain 5042
Repeller Maximum 38 volts using ion 502;

MassGain Values @Samples: 45@3 45@2 45@1 45@0 45@FS

TARGET MASS:	50	69	131	219	414	502	800
Amu Offset:	135.0	135.0	135.0	135.0	135.0	135.0	135.0
Entrance Lens Offset:	22.1	22.1	22.1	22.1	22.1	22.1	22.1

Response Factor Report GCMS #8

Method Path : C:\msdchem\1\METHODS\
Method File : PAH160802.M
Title : CLP BNA Calibration - Large Volume Injection
Last Update : Wed Aug 03 10:10:50 2016
Response Via : Initial Calibration

Calibration Files
1 =16080214.D 2 =16080215.D 3 =16080216.D 4 =16080217.D 5 =16080218.D 6 =16080219.D 7 =16080220.D
8 =16080221.D

		Compound	1	2	3	4	5	6	7	8	Avg	%RSD	Fit	RSD/CF	Constant	Linear	Quad
1)	I	Naphthalene-d8	----------ISTD----------														
2)	T	Naphthalene	1.121	0.999	0.975	1.013	0.934	0.903	0.910	0.925	0.973	7.45	A	0.0745	0.0000	0.9726	0.0000
3)	T	2-Methyl napht...	0.631	0.623	0.607	0.644	0.606	0.587	0.592	0.606	0.612	3.17	A	0.0317	0.0000	0.6120	0.0000
4)	T	1-Methyl napht...	0.579	0.555	0.563	0.609	0.559	0.539	0.543	0.548	0.562	4.06	A	0.0406	0.0000	0.5620	0.0000
5)	S	2-Fluorobiphenyl	0.689	0.683	0.660	0.711	0.657	0.634	0.635	0.638	0.663	4.29	A	0.0429	0.0000	0.6633	0.0000
6)	I	Acenaphthene-d10	----------ISTD----------														
7)	T	Acenaphthylene	1.998	1.874	1.874	1.965	1.905	1.853	1.911	1.962	1.918	2.71	A	0.0271	0.0000	1.9178	0.0000
8)	T	Acenaphthene	1.313	1.165	1.218	1.263	1.200	1.157	1.190	1.213	1.215	4.26	A	0.0426	0.0000	1.2150	0.0000
9)	T	Dibenzofuran	1.852	1.719	1.673	1.773	1.700	1.634	1.666	1.756	1.722	4.07	A	0.0407	0.0000	1.7216	0.0000
10)	T	Fluorene	1.559	1.393	1.366	1.489	1.426	1.388	1.430	1.573	1.453	5.44	A	0.0544	0.0000	1.4530	0.0000
11)	I	Phenanthrene-d10	----------ISTD----------														
12)	T	Phenanthrene	1.133	1.195	1.067	1.146	1.065	0.997	1.020	1.029	1.081	6.42	A	0.0642	0.0000	1.0814	0.0000
13)	T	Anthracene	1.163	1.067	1.095	1.250	1.071	1.064	1.073	1.066	1.106	6.04	A	0.0604	0.0000	1.1061	0.0000
14)	T	Fluoranthene	1.561	1.392	1.467	1.543	1.459	1.406	1.447	1.333	1.451	5.23	A	0.0523	0.0000	1.4510	0.0000
15)	S	4-Terphenyl-d14	1.076	0.972	1.036	1.044	1.018	0.967	0.985	0.871	0.996	6.34	A	0.0634	0.0000	0.9962	0.0000
16)	T	Pyrene	1.659	1.466	1.542	1.607	1.521	1.434	1.482	1.338	1.506	6.68	A	0.0668	0.0000	1.5063	0.0000
17)	I	Chrysene-d12	----------ISTD----------														
18)	T	Benzo[a]anthra...	1.050	0.934	0.989	1.109	1.074	1.050	1.077	1.014	1.037	5.38	A	0.0538	0.0000	1.0371	0.0000
19)	T	Chrysene	1.030	0.925	0.954	1.071	1.012	0.984	0.995	0.946	0.990	4.87	A	0.0487	0.0000	0.9896	0.0000
20)	I	Perylene-d12	----------ISTD----------														
21)	T	Benzo[b]fluora...	1.061	0.970	1.041	1.203	1.103	1.079	1.120	1.058	1.079	6.24	A	0.0624	0.0000	1.0793	0.0000
22)	T	Benzo[k]fluora...	0.825	0.748	0.840	1.010	0.999	0.987	1.019	0.959	0.923	11.20	A	0.1120	0.0000	0.9233	0.0000
23)	cp	Benzo(j)fluora...	0.882	0.807	0.868	0.920	0.949	0.922	0.962	0.904	0.902	5.50	A	0.0550	0.0000	0.9018	0.0000
24)	T	Benzo(e)pyrene	1.116	1.002	1.027	1.088	1.049	1.022	1.054	0.997	1.044	3.94	A	0.0394	0.0000	1.0444	0.0000
25)	T	Benzo[a]pyrene	0.979	0.894	0.948	1.085	1.021	0.993	1.028	0.980	0.991	5.76	A	0.0576	0.0000	0.9911	0.0000
26)	T	Indeno[1,2,3-c...	1.086	1.053	1.128	1.287	1.204	1.191	1.234	1.181	1.171	6.63	A	0.0663	0.0000	1.1705	0.0000
27)	T	Dibenz[a,h]ant...	0.936	0.858	0.905	1.039	0.981	0.979	1.021	0.980	0.962	6.22	A	0.0622	0.0000	0.9625	0.0000
28)	T	Benzo[g,h,i]pe...	1.038	0.962	1.006	1.122	1.042	1.003	1.039	1.014	1.028	4.47	A	0.0447	0.0000	1.0282	0.0000

(#) = Out of Range

Sequence Name: C:\msdchem\1\sequence\160802.S
Comment:
Operator:
Data Path: C:\MSDCHEM\1\DATA\160802\
Instrument Name: GCMS #8
Instrument Control Pre-Seq Cmd:
Data Analysis Pre-Seq Cmd:

Instrument Control Post-Seq Cmd:
Data Analysis Post-Seq Cmd:

Method Sections To Run
(X) Full Method
( ) Reprocessing Only

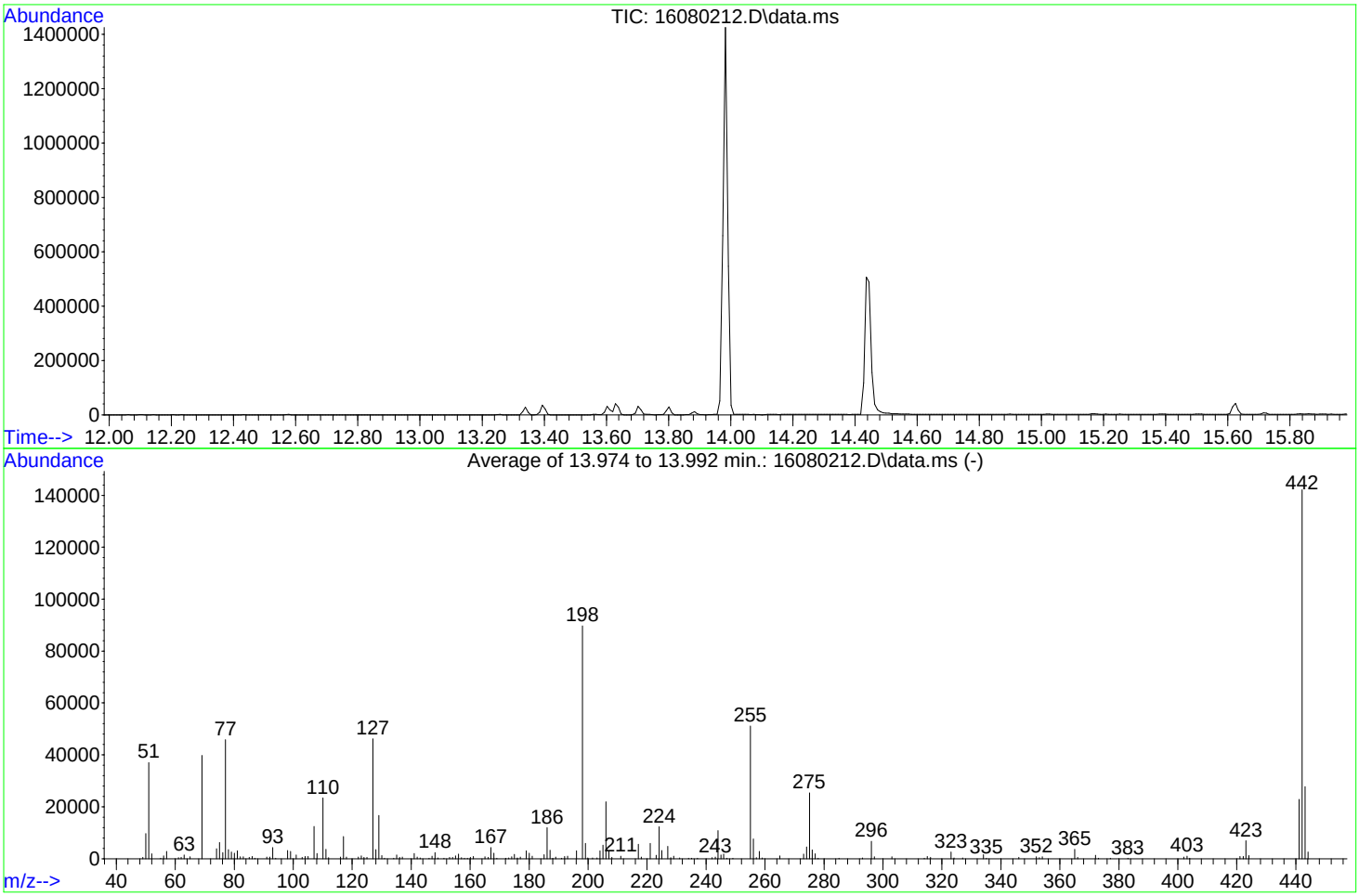
On A Barcode Mismatch
(X) Inject Anyway
( ) Don't Inject

Line				
1)	Sample	1	16080201 DFTPPPCB	DFTPP-160802
2)	Sample	2	16080202 1660-160609	ICV-160802
3)	Sample	3	16080203 1660-160609	ICV-160802
4)	Sample	3	16080204 1660-160609	ICV-160803
5)	Sample	1	16080205 DFTPPPCB	DFTPP-160802
6)	Sample	2	16080206 1660-160609	ICV-160802
7)	Sample	3	16080207 1660-160609	LCS-76577-PCB
8)	Sample	4	16080208 1660-160609	LCSD-76577-PCB
9)	Sample	5	16080209 1660-160609	MB-76577
10)	Sample	6	16080210 1660-160609	1607277-01G

Data Path : C:\msdchem\1\DATA\160802\
Data File : 16080212.D
Acq On : 2 Aug 2016 5:25 pm
Operator :
Sample : DFTPP-160802
Misc : TUNE
ALS Vial : 2 Sample Multiplier: 1

Integration File: RTEINT.P

Method : C:\msdchem\1\METHODS\DFTPPPAH.M
Title : CLP BNA Calibration - Large Volume Injection
Last Update : Thu Aug 27 07:24:43 2015



AutoFind: Scans 429, 430, 431; Background Corrected with Scan 425

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	10	80	41.3	37038	PASS
68	69	0.00	2	0.0	0	PASS
69	198	0.00	100	44.4	39782	PASS
70	69	0.00	2	0.0	0	PASS
127	198	10	80	51.5	46158	PASS
197	198	0.00	2	0.0	0	PASS
198	198	100	100	100.0	89674	PASS
199	198	5	9	6.6	5912	PASS
275	198	10	60	28.4	25423	PASS
365	198	1	200	4.0	3581	PASS
441	442	0.01	24	16.0	22792	PASS
442	198	50	400	158.6	142189	PASS
443	442	15	24	19.5	27730	PASS

REVIEWED/APPROVED
By Sherri Herschmann at 9:56:14 AM, 8/10/2016

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160802\
Data File : 16080214.D
Acq On : 2 Aug 2016 6:44 pm
Operator :
Sample : CAL1 (5 ppb)
Misc : CAL1
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Aug 03 10:24:16 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 10:10:50 2016
Response via : Initial Calibration

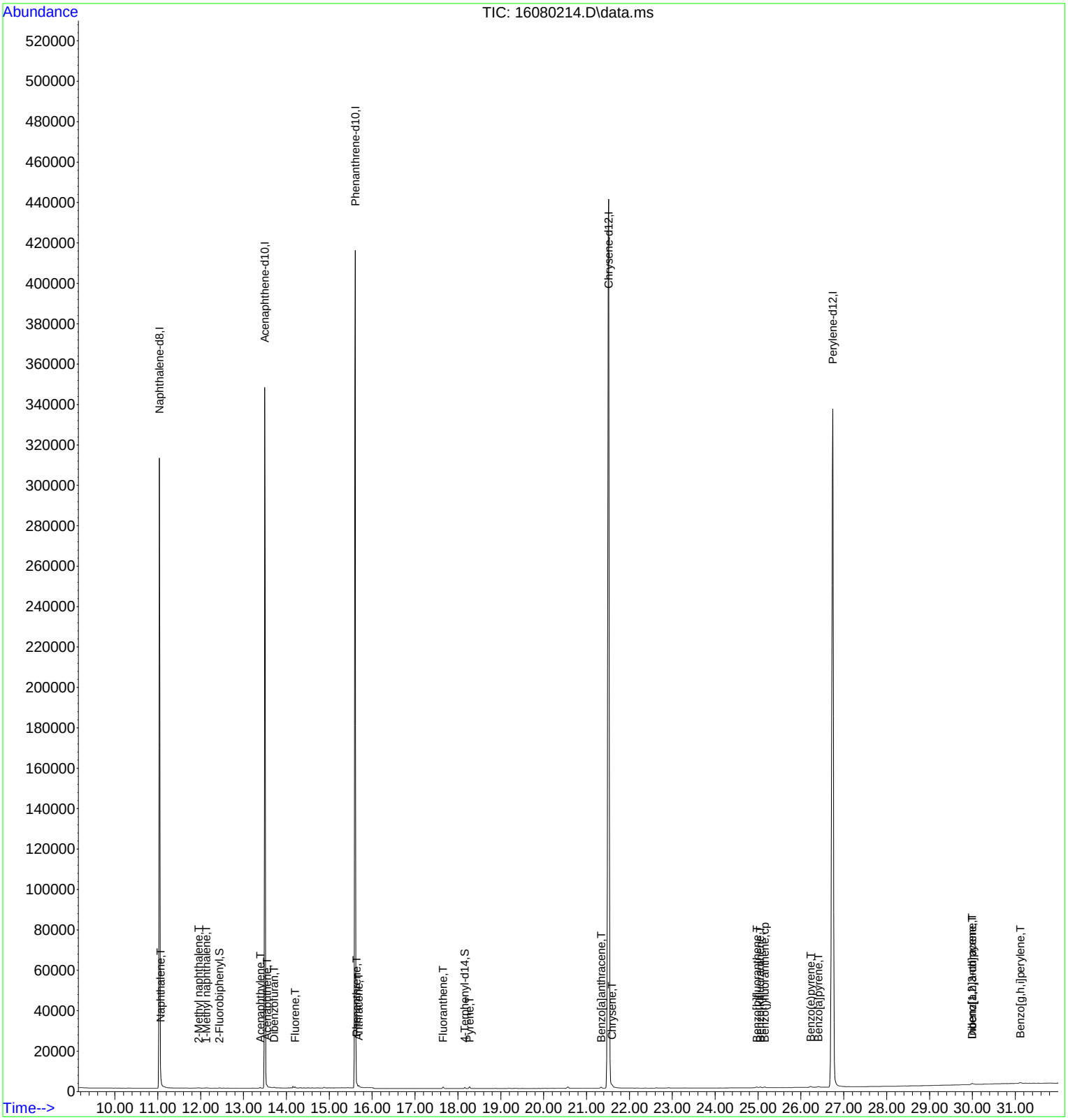
Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	11.038	136	385396	4000.00	ug/kg	98
6) Acenaphthene-d10	13.495	164	185765	4000.00	ug/kg	102
11) Phenanthrene-d10	15.605	188	486418	4000.00	ug/kg	97
17) Chrysene-d12	21.516	240	689401	4000.00	ug/kg	102
20) Perylene-d12	26.741	264	619616	4000.00	ug/kg	101
System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.436	172	332	5.19	ug/kg	0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery = 0.13%#			
15) 4-Terphenyl-d14	18.158	244	654	5.40	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery = 0.14%#			
Target Compounds						Qvalue
2) Naphthalene	11.073	128	540	5.76	ug/kg	100
3) 2-Methyl naphthalene	11.950	142	304	5.16	ug/kg	95
4) 1-Methyl naphthalene	12.132	142	279	5.15	ug/kg	97
7) Acenaphthylene	13.391	152	464	5.21	ug/kg	99
8) Acenaphthene	13.548	153	305	5.41	ug/kg	99
9) Dibenzofuran	13.713	168	430	5.38	ug/kg	75
10) Fluorene	14.199	166	362	5.36	ug/kg	99
12) Phenanthrene	15.640	178	689	5.24	ug/kg	99
13) Anthracene	15.683	178	707	5.26	ug/kg	99
14) Fluoranthene	17.651	202	949	5.38	ug/kg	95
16) Pyrene	18.271	202	1009	5.51	ug/kg	97
18) Benzo[a]anthracene	21.339	228	905	5.06	ug/kg	99
19) Chrysene	21.596	228	888	5.21	ug/kg	97
21) Benzo[b]fluoranthene	24.970	252	822	4.92	ug/kg	94
22) Benzo[k]fluoranthene	25.050	252	639	4.47	ug/kg	95
23) Benzo(j)fluoranthene	25.155	252	683	4.89	ug/kg	97
24) Benzo(e)pyrene	26.226	252	864	5.34	ug/kg	87
25) Benzo[a]pyrene	26.403	252	758	4.94	ug/kg	94
26) Indeno[1,2,3-cd]pyrene	30.002	276	841	4.64	ug/kg	95
27) Dibenz[a,h]anthracene	29.986	278	725	4.86	ug/kg	92
28) Benzo[g,h,i]perylene	31.113	276	804	5.05	ug/kg	98

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160802\
Data File : 16080214.D
Acq On : 2 Aug 2016 6:44 pm
Operator :
Sample : CAL1 (5 ppb)
Misc : CAL1
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Aug 03 10:24:16 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 10:10:50 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160802\
Data File : 16080215.D
Acq On : 2 Aug 2016 7:23 pm
Operator :
Sample : CAL2 (10 ppb)
Misc : CAL2
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Aug 03 10:24:20 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 10:10:50 2016
Response via : Initial Calibration

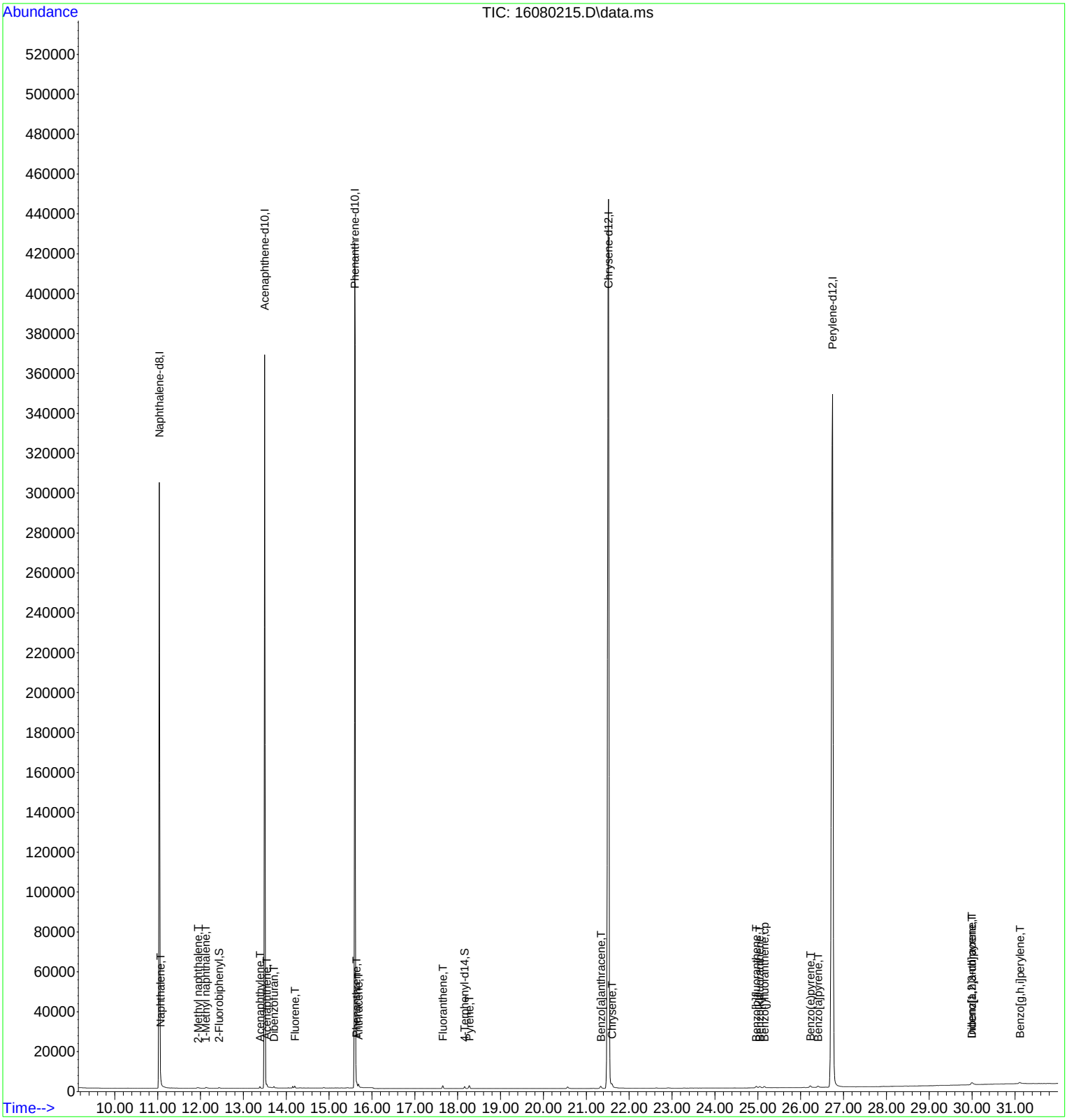
Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	11.041	136	379089	4000.00	ug/kg	97
6) Acenaphthene-d10	13.498	164	187838	4000.00	ug/kg	103
11) Phenanthrene-d10	15.599	188	505178	4000.00	ug/kg	101
17) Chrysene-d12	21.517	240	701631	4000.00	ug/kg	104
20) Perylene-d12	26.742	264	635670	4000.00	ug/kg	104
System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.430	172	647	10.29	ug/kg	0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery = 0.26%#			
15) 4-Terphenyl-d14	18.160	244	1228	9.76	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery = 0.24%#			
Target Compounds						Qvalue
2) Naphthalene	11.076	128	947	10.27	ug/kg	99
3) 2-Methyl naphthalene	11.944	142	590	10.17	ug/kg	97
4) 1-Methyl naphthalene	12.126	142	526	9.88	ug/kg	99
7) Acenaphthylene	13.385	152	880	9.77	ug/kg	99
8) Acenaphthene	13.550	153	547	9.59	ug/kg	98
9) Dibenzofuran	13.715	168	807	9.98	ug/kg	90
10) Fluorene	14.201	166	654	9.59	ug/kg	100
12) Phenanthrene	15.642	178	1509	11.05	ug/kg	99
13) Anthracene	15.686	178	1348	9.65	ug/kg	99
14) Fluoranthene	17.652	202	1758	9.59	ug/kg	98
16) Pyrene	18.272	202	1852	9.74	ug/kg	97
18) Benzo[a]anthracene	21.340	228	1639	9.01	ug/kg	99
19) Chrysene	21.598	228	1623	9.35	ug/kg	98
21) Benzo[b]fluoranthene	24.963	252	1541	8.98	ug/kg	99
22) Benzo[k]fluoranthene	25.052	252	1189	8.10	ug/kg	92
23) Benzo(j)fluoranthene	25.156	252	1282	8.95	ug/kg	97
24) Benzo(e)pyrene	26.227	252	1593	9.60	ug/kg	95
25) Benzo[a]pyrene	26.404	252	1420	9.02	ug/kg	99
26) Indeno[1,2,3-cd]pyrene	30.003	276	1673	8.99	ug/kg	96
27) Dibenz[a,h]anthracene	29.987	278	1364	8.92	ug/kg	97
28) Benzo[g,h,i]perylene	31.114	276	1529	9.36	ug/kg	99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160802\
Data File : 16080215.D
Acq On : 2 Aug 2016 7:23 pm
Operator :
Sample : CAL2 (10 ppb)
Misc : CAL2
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Aug 03 10:24:20 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 10:10:50 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160802\
Data File : 16080216.D
Acq On : 2 Aug 2016 8:03 pm
Operator :
Sample : CAL3 (50 ppb)
Misc : CAL
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Aug 03 10:24:23 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 10:10:50 2016
Response via : Initial Calibration

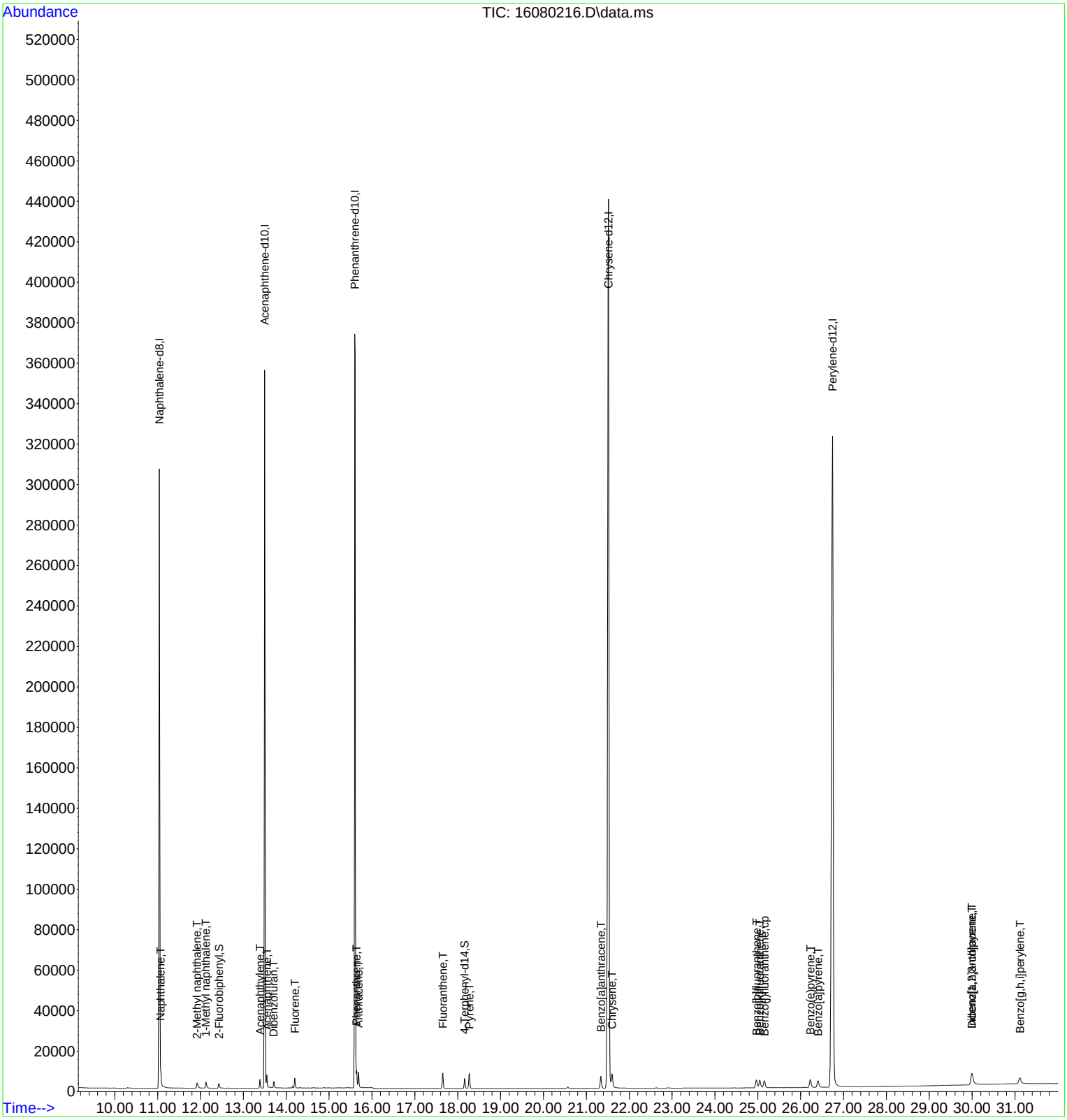
Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	11.040	136	375891	4000.00	ug/kg	96
6) Acenaphthene-d10	13.497	164	180595	4000.00	ug/kg	99
11) Phenanthrene-d10	15.607	188	464427	4000.00	ug/kg	93
17) Chrysene-d12	21.516	240	672646	4000.00	ug/kg	100
20) Perylene-d12	26.741	264	597332	4000.00	ug/kg	97
System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.429	172	3100	49.73	ug/kg	0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery = 1.24%#			
15) 4-Terphenyl-d14	18.158	244	6016	52.01	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery = 1.30%#			
Target Compounds						Qvalue
2) Naphthalene	11.075	128	4581	50.12	ug/kg	100
3) 2-Methyl naphthalene	11.926	142	2854	49.62	ug/kg	96
4) 1-Methyl naphthalene	12.125	142	2646	50.10	ug/kg	99
7) Acenaphthylene	13.384	152	4231	48.86	ug/kg	99
8) Acenaphthene	13.549	153	2750	50.13	ug/kg	98
9) Dibenzofuran	13.714	168	3777	48.59	ug/kg	96
10) Fluorene	14.200	166	3083	47.00	ug/kg	99
12) Phenanthrene	15.642	178	6193	49.32	ug/kg	100
13) Anthracene	15.685	178	6356	49.49	ug/kg	100
14) Fluoranthene	17.651	202	8515	50.54	ug/kg	96
16) Pyrene	18.271	202	8950	51.18	ug/kg	94
18) Benzo[a]anthracene	21.339	228	8316	47.68	ug/kg	99
19) Chrysene	21.596	228	8018	48.18	ug/kg	100
21) Benzo[b]fluoranthene	24.970	252	7771	48.22	ug/kg	99
22) Benzo[k]fluoranthene	25.042	252	6272	45.49	ug/kg	100
23) Benzo(j)fluoranthene	25.155	252	6480	48.12	ug/kg	98
24) Benzo(e)pyrene	26.226	252	7666	49.15	ug/kg	99
25) Benzo[a]pyrene	26.403	252	7080	47.84	ug/kg	99
26) Indeno[1,2,3-cd]pyrene	30.002	276	8423	48.19	ug/kg	96
27) Dibenz[a,h]anthracene	29.986	278	6757	47.01	ug/kg	99
28) Benzo[g,h,i]perylene	31.113	276	7515	48.94	ug/kg	99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160802\
Data File : 16080216.D
Acq On : 2 Aug 2016 8:03 pm
Operator :
Sample : CAL3 (50 ppb)
Misc : CAL
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Aug 03 10:24:23 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 10:10:50 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160802\
Data File : 16080217.D
Acq On : 2 Aug 2016 8:43 pm
Operator :
Sample : CAL4 (100 ppb)
Misc : CAL
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Aug 03 10:24:26 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 10:10:50 2016
Response via : Initial Calibration

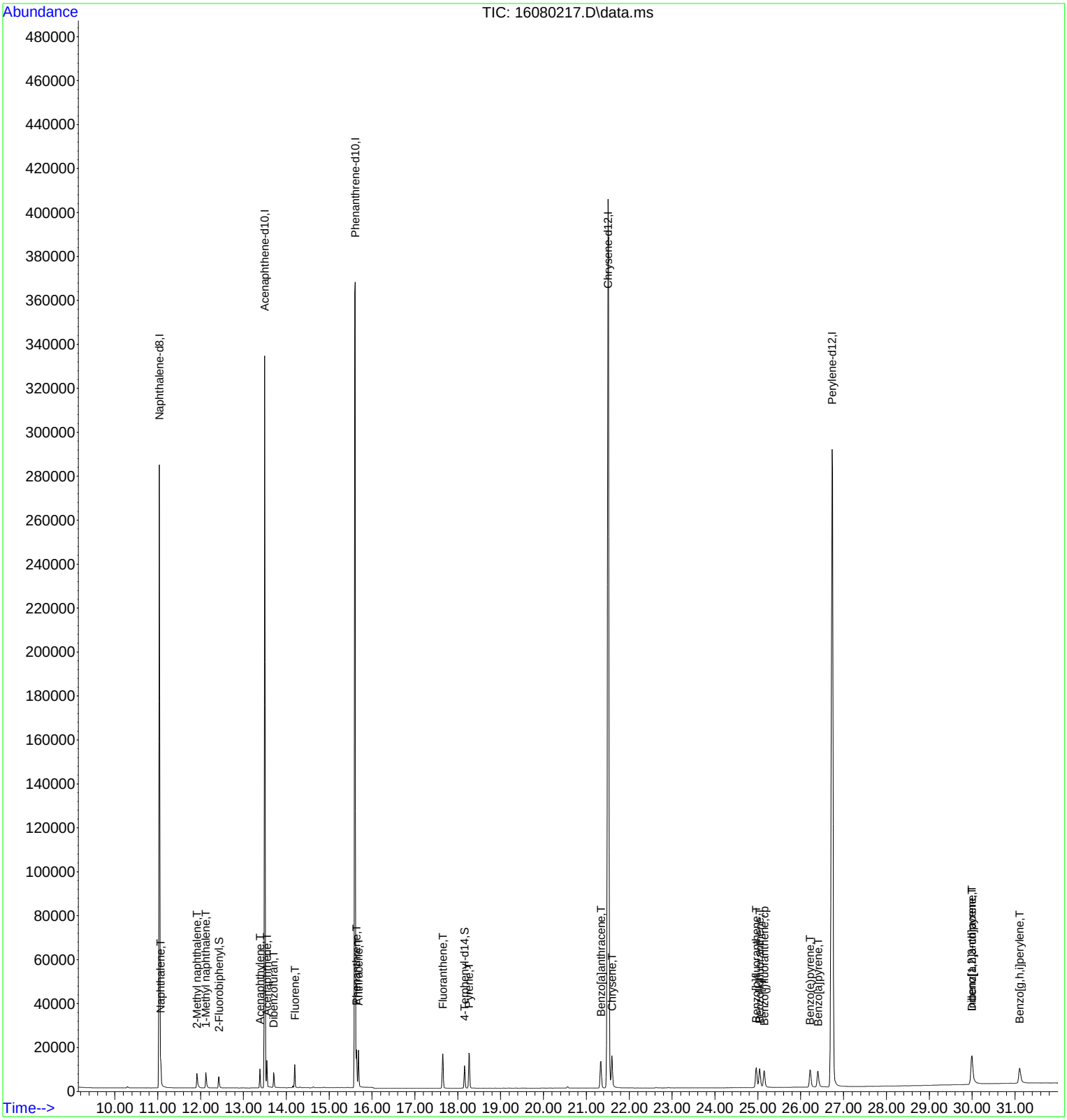
Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	11.039	136	343877	4000.00	ug/kg	88
6) Acenaphthene-d10	13.496	164	171051	4000.00	ug/kg	94
11) Phenanthrene-d10	15.606	188	460478	4000.00	ug/kg	92
17) Chrysene-d12	21.508	240	638849	4000.00	ug/kg	95
20) Perylene-d12	26.734	264	558956	4000.00	ug/kg	91
System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.428	172	6112	107.18	ug/kg	0.02
Spiked Amount 4000.000	Range 40 - 140		Recovery = 2.68%#			
15) 4-Terphenyl-d14	18.159	244	12023	104.84	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery = 2.62%#			
Target Compounds						Qvalue
2) Naphthalene	11.074	128	8705	104.11	ug/kg	99
3) 2-Methyl naphthalene	11.916	142	5539	105.27	ug/kg	99
4) 1-Methyl naphthalene	12.124	142	5236	108.38	ug/kg	97
7) Acenaphthylene	13.383	152	8405	102.49	ug/kg	99
8) Acenaphthene	13.548	153	5402	103.97	ug/kg	99
9) Dibenzofuran	13.704	168	7582	102.99	ug/kg	71
10) Fluorene	14.199	166	6369	102.51	ug/kg	99
12) Phenanthrene	15.640	178	13188	105.94	ug/kg	99
13) Anthracene	15.684	178	14388	113.00	ug/kg	99
14) Fluoranthene	17.652	202	17768	106.37	ug/kg	94
16) Pyrene	18.264	202	18501	106.70	ug/kg	100
18) Benzo[a]anthracene	21.339	228	17710	106.92	ug/kg	99
19) Chrysene	21.597	228	17109	108.25	ug/kg	98
21) Benzo[b]fluoranthene	24.962	252	16805	111.43	ug/kg	99
22) Benzo[k]fluoranthene	25.043	252	14107	109.34	ug/kg	99
23) Benzo(j)fluoranthene	25.148	252	12862	102.07	ug/kg	98
24) Benzo(e)pyrene	26.218	252	15197	104.13	ug/kg	99
25) Benzo[a]pyrene	26.404	252	15166	109.50	ug/kg	97
26) Indeno[1,2,3-cd]pyrene	29.995	276	17985	109.95	ug/kg	97
27) Dibenz[a,h]anthracene	29.987	278	14518	107.94	ug/kg	99
28) Benzo[g,h,i]perylene	31.106	276	15672	109.07	ug/kg	97

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160802\
Data File : 16080217.D
Acq On : 2 Aug 2016 8:43 pm
Operator :
Sample : CAL4 (100 ppb)
Misc : CAL
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Aug 03 10:24:26 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 10:10:50 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160802\
Data File : 16080218.D
Acq On : 2 Aug 2016 9:22 pm
Operator :
Sample : CAL5 (500 ppb)
Misc : CAL
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Aug 03 10:24:29 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 10:10:50 2016
Response via : Initial Calibration

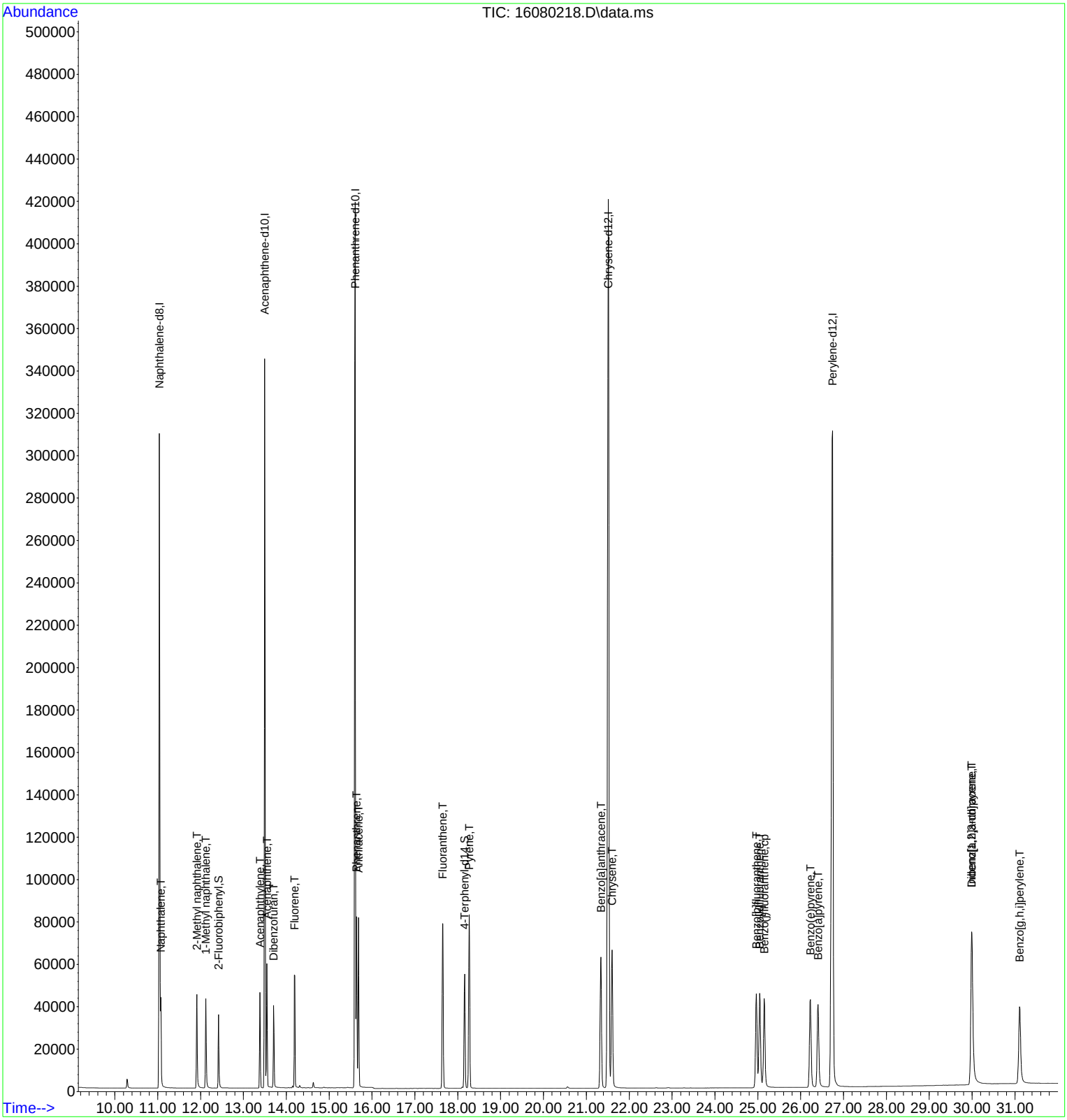
Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	11.038	136	368275	4000.00	ug/kg	94
6) Acenaphthene-d10	13.495	164	176937	4000.00	ug/kg	97
11) Phenanthrene-d10	15.605	188	485885	4000.00	ug/kg	97
17) Chrysene-d12	21.509	240	652222	4000.00	ug/kg	97
20) Perylene-d12	26.743	264	588578	4000.00	ug/kg	96
System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.419	172	30251	495.32	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 12.38%#			
15) 4-Terphenyl-d14	18.160	244	61828	510.93	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery = 12.77%#			
Target Compounds						Qvalue
2) Naphthalene	11.073	128	42986	480.06	ug/kg	99
3) 2-Methyl naphthalene	11.915	142	27883	494.84	ug/kg	96
4) 1-Methyl naphthalene	12.123	142	25752	497.71	ug/kg	97
7) Acenaphthylene	13.382	152	42130	496.62	ug/kg	99
8) Acenaphthene	13.547	153	26543	493.86	ug/kg	97
9) Dibenzofuran	13.704	168	37605	493.80	ug/kg	78
10) Fluorene	14.198	166	31546	490.83	ug/kg	99
12) Phenanthrene	15.640	178	64655	492.20	ug/kg	100
13) Anthracene	15.683	178	65057	484.21	ug/kg	99
14) Fluoranthene	17.653	202	88604	502.70	ug/kg	94
16) Pyrene	18.265	202	92404	505.03	ug/kg	99
18) Benzo[a]anthracene	21.340	228	87577	517.87	ug/kg	100
19) Chrysene	21.598	228	82501	511.27	ug/kg	99
21) Benzo[b]fluoranthene	24.963	252	81152	511.01	ug/kg	100
22) Benzo[k]fluoranthene	25.044	252	73470	540.79	ug/kg	99
23) Benzo(j)fluoranthene	25.149	252	69856	526.44	ug/kg	99
24) Benzo(e)pyrene	26.227	252	77212	502.44	ug/kg	100
25) Benzo[a]pyrene	26.405	252	75123	515.12	ug/kg	98
26) Indeno[1,2,3-cd]pyrene	29.996	276	88606	514.44	ug/kg	99
27) Dibenz[a,h]anthracene	29.988	278	72169	509.58	ug/kg	99
28) Benzo[g,h,i]perylene	31.107	276	76652	506.64	ug/kg	97

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160802\
Data File : 16080218.D
Acq On : 2 Aug 2016 9:22 pm
Operator :
Sample : CAL5 (500 ppb)
Misc : CAL
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Aug 03 10:24:29 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 10:10:50 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160802\
Data File : 16080219.D
Acq On : 2 Aug 2016 10:02 pm
Operator :
Sample : CAL6 (1000 ppb)
Misc : CAL
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Aug 03 10:24:32 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 10:10:50 2016
Response via : Initial Calibration

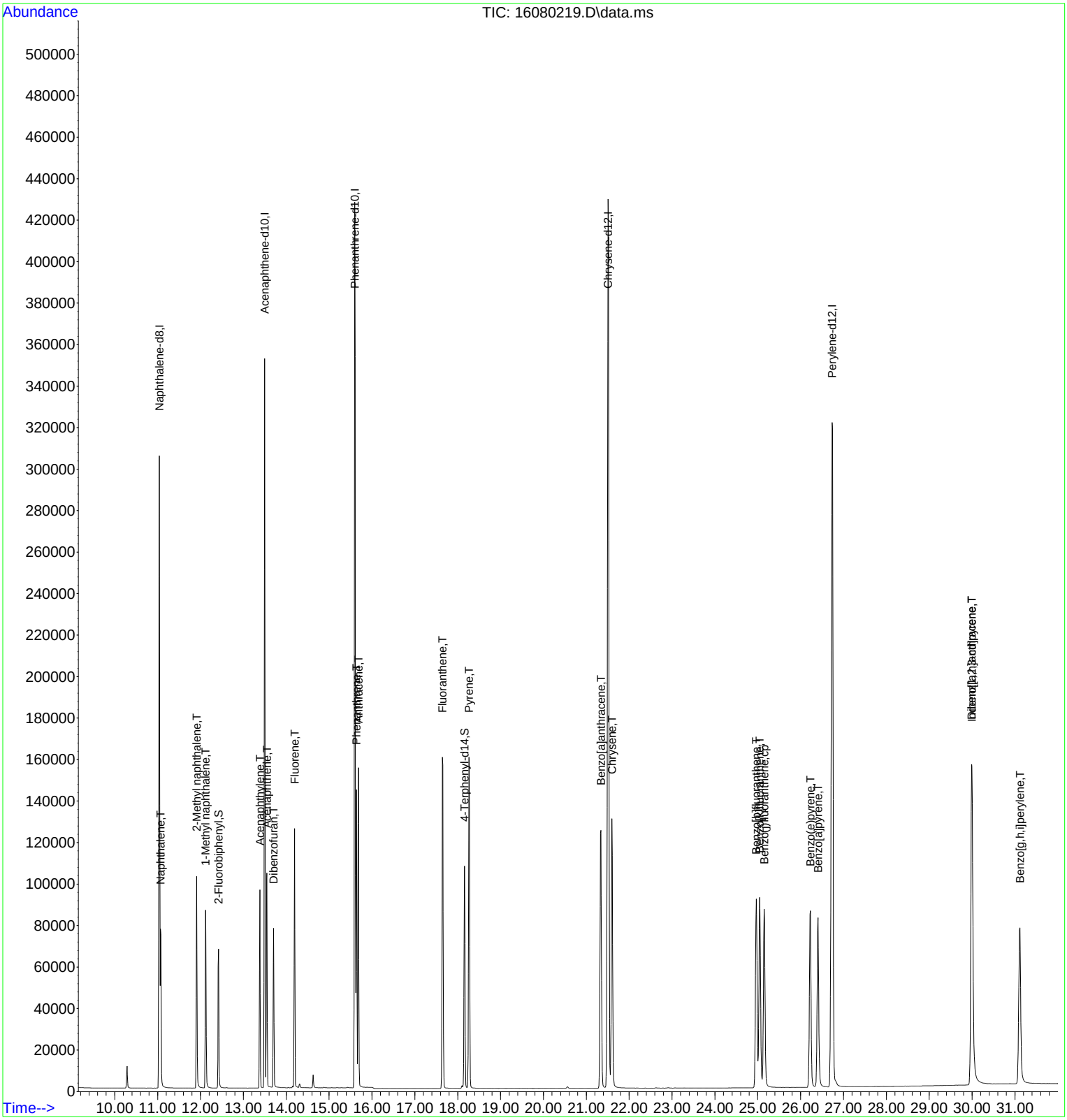
Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	11.040	136	386528	4000.00	ug/kg	98
6) Acenaphthene-d10	13.497	164	183850	4000.00	ug/kg	101
11) Phenanthrene-d10	15.598	188	503015	4000.00	ug/kg	101
17) Chrysene-d12	21.509	240	674037	4000.00	ug/kg	100
20) Perylene-d12	26.734	264	614870	4000.00	ug/kg	100
System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.420	172	61248	955.51	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 23.89%#			
15) 4-Terphenyl-d14	18.159	244	121618	970.79	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery = 24.27%#			
Target Compounds						Qvalue
2) Naphthalene	11.075	128	87297	928.87	ug/kg	99
3) 2-Methyl naphthalene	11.908	142	56717	959.02	ug/kg	99
4) 1-Methyl naphthalene	12.117	142	52067	958.79	ug/kg	99
7) Acenaphthylene	13.384	152	85164	966.14	ug/kg	100
8) Acenaphthene	13.549	153	53195	952.53	ug/kg	97
9) Dibenzofuran	13.705	168	75106	949.15	ug/kg	95
10) Fluorene	14.192	166	63783	955.09	ug/kg	99
12) Phenanthrene	15.642	178	125420	922.27	ug/kg	100
13) Anthracene	15.685	178	133772	961.74	ug/kg	100
14) Fluoranthene	17.644	202	176788	968.87	ug/kg	99
16) Pyrene	18.264	202	180373	952.26	ug/kg	99
18) Benzo[a]anthracene	21.340	228	176880	1012.10	ug/kg	100
19) Chrysene	21.597	228	165784	994.14	ug/kg	99
21) Benzo[b]fluoranthene	24.963	252	165843	999.64	ug/kg	99
22) Benzo[k]fluoranthene	25.043	252	151774	1069.39	ug/kg	100
23) Benzo(j)fluoranthene	25.148	252	141728	1022.41	ug/kg	99
24) Benzo(e)pyrene	26.227	252	157087	978.50	ug/kg	100
25) Benzo[a]pyrene	26.404	252	152694	1002.25	ug/kg	98
26) Indeno[1,2,3-cd]pyrene	30.003	276	183022	1017.18	ug/kg	93
27) Dibenz[a,h]anthracene	29.987	278	150487	1017.15	ug/kg	100
28) Benzo[g,h,i]perylene	31.114	276	154189	975.54	ug/kg	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160802\
Data File : 16080219.D
Acq On : 2 Aug 2016 10:02 pm
Operator :
Sample : CAL6 (1000 ppb)
Misc : CAL
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Aug 03 10:24:32 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 10:10:50 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160802\
Data File : 16080220.D
Acq On : 2 Aug 2016 10:42 pm
Operator :
Sample : CAL7 (2000 ppb)
Misc : CAL
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Aug 03 10:24:35 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 10:10:50 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	11.041	136	392416	4000.00	ug/kg	100
6) Acenaphthene-d10	13.498	164	182713	4000.00	ug/kg	100
11) Phenanthrene-d10	15.599	188	499349	4000.00	ug/kg	100
17) Chrysene-d12	21.509	240	673020	4000.00	ug/kg	100
20) Perylene-d12	26.742	264	612847	4000.00	ug/kg	100

System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.413	172	124577	1914.32	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 47.86%			
15) 4-Terphenyl-d14	18.160	244	245963	1977.75	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery = 49.44%#			

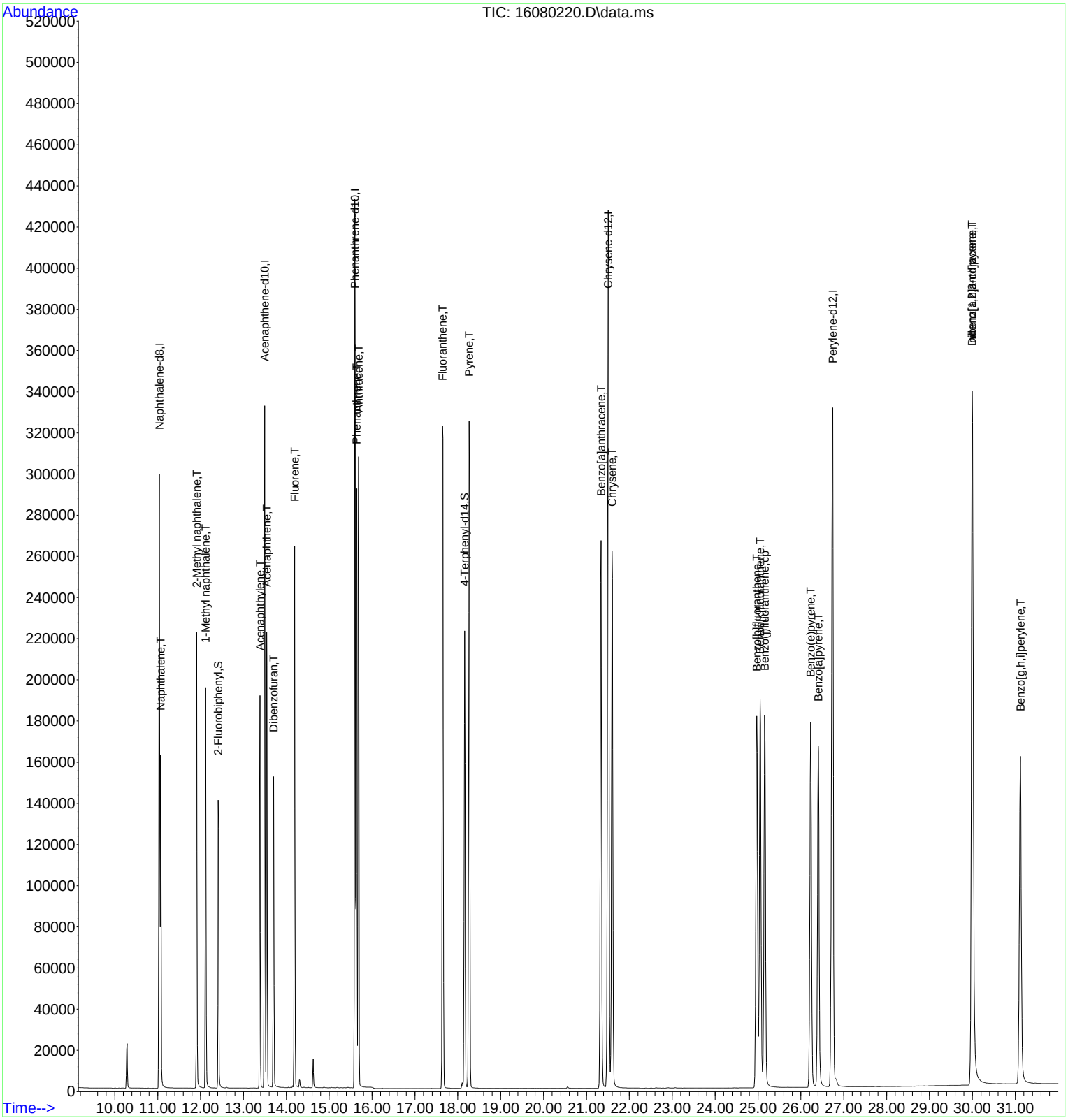
Target Compounds						Qvalue
2) Naphthalene	11.067	128	178638	1872.25	ug/kg	100
3) 2-Methyl naphthalene	11.909	142	116176	1934.93	ug/kg	100
4) 1-Methyl naphthalene	12.117	142	106548	1932.59	ug/kg	100
7) Acenaphthylene	13.385	152	174601	1993.09	ug/kg	100
8) Acenaphthene	13.541	153	108721	1958.92	ug/kg	100
9) Dibenzofuran	13.706	168	152226	1935.72	ug/kg	100
10) Fluorene	14.192	166	130611	1967.95	ug/kg	100
12) Phenanthrene	15.642	178	254637	1886.22	ug/kg	100
13) Anthracene	15.686	178	267809	1939.53	ug/kg	100
14) Fluoranthene	17.644	202	361336	1994.80	ug/kg	100
16) Pyrene	18.264	202	369951	1967.45	ug/kg	100
18) Benzo[a]anthracene	21.340	228	362283	2076.10	ug/kg	100
19) Chrysene	21.598	228	334873	2011.13	ug/kg	100
21) Benzo[b]fluoranthene	24.971	252	343274	2075.96	ug/kg	100
22) Benzo[k]fluoranthene	25.052	252	312137	2206.56	ug/kg	100
23) Benzo(j)fluoranthene	25.156	252	294707	2133.00	ug/kg	100
24) Benzo(e)pyrene	26.227	252	323026	2018.78	ug/kg	100
25) Benzo[a]pyrene	26.404	252	315127	2075.24	ug/kg	100
26) Indeno[1,2,3-cd]pyrene	30.003	276	378254	2109.15	ug/kg	100
27) Dibenz[a,h]anthracene	29.995	278	312978	2122.41	ug/kg	100
28) Benzo[g,h,i]perylene	31.122	276	318362	2020.90	ug/kg	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160802\
Data File : 16080220.D
Acq On : 2 Aug 2016 10:42 pm
Operator :
Sample : CAL7 (2000 ppb)
Misc : CAL
ALS Vial : 10 Sample Multiplier: 1

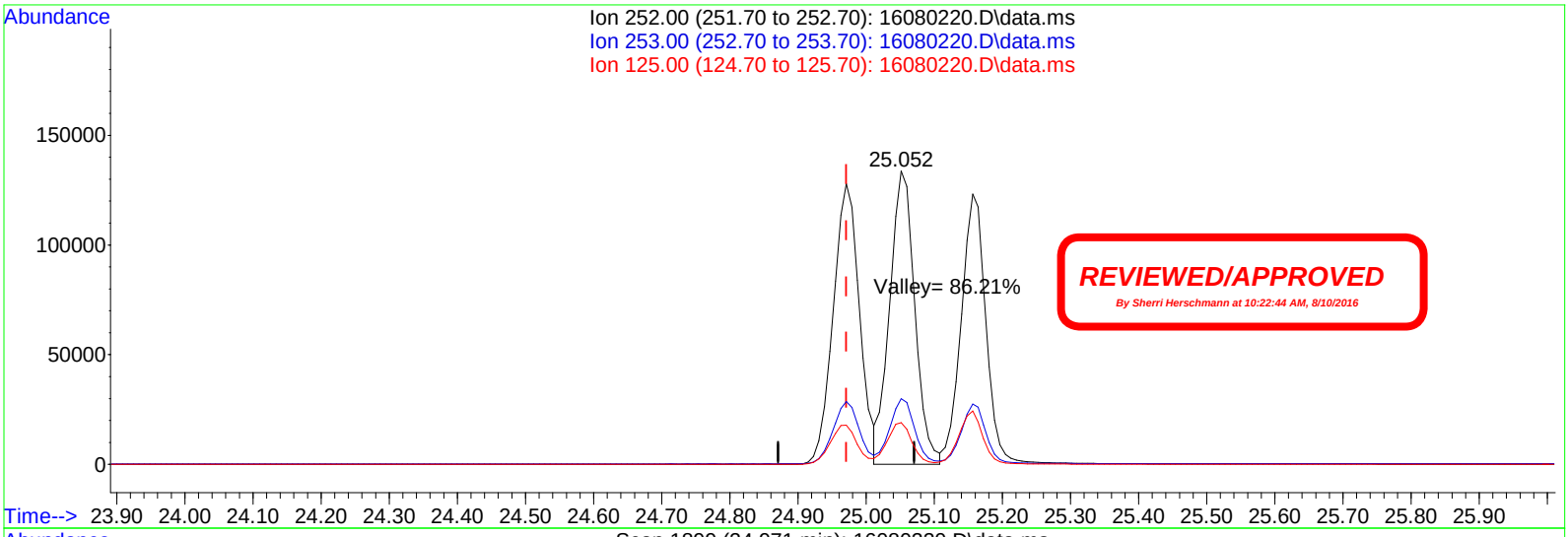
Quant Time: Aug 03 10:24:35 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 10:10:50 2016
Response via : Initial Calibration

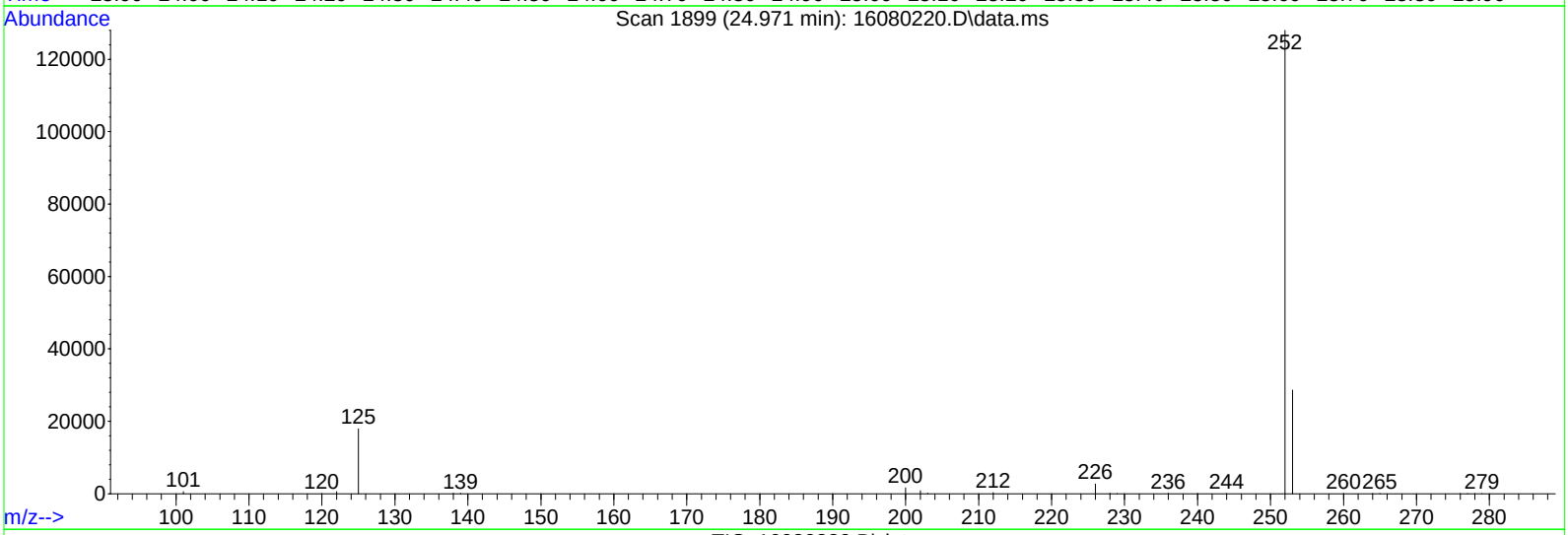


Quantitation Report (Qedit)

Data Path : C:\msdchem\1\DATA\160802\
Data File : 16080220.D
Acq On : 2 Aug 2016 10:42 pm
Operator :
Sample : CAL7 (2000 ppb)
Misc : CAL
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Aug 03 10:24:35 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 10:10:50 2016
Response via : Initial Calibration





TIC: 16080220.D\data.ms

(21) Benzo[b]fluoranthene (T)

24.971min (+0.000) 2075.96ug/kg

response 343274

Ion	Exp%	Act%
252.00	100	100
253.00	22.10	22.12
125.00	13.90	13.91
0.00	0.00	0.00

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160802\
Data File : 16080221.D
Acq On : 2 Aug 2016 11:22 pm
Operator :
Sample : CAL8 (5000 ppb)
Misc : CAL
ALS Vial : 11 Sample Multiplier: 1

Quant Time: Aug 03 10:24:38 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 10:10:50 2016
Response via : Initial Calibration

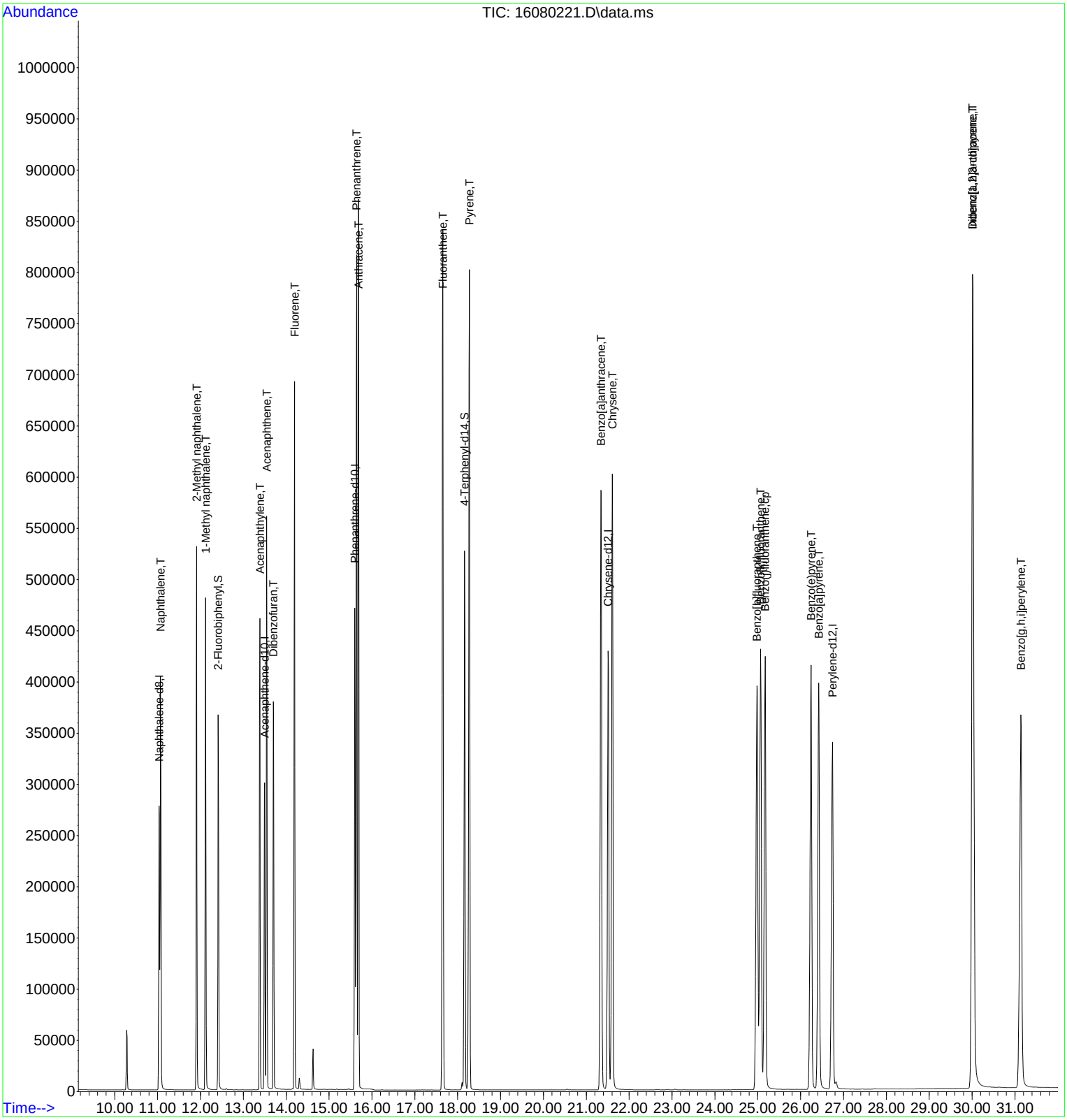
Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	11.033	136	373369	4000.00	ug/kg	95
6) Acenaphthene-d10	13.498	164	175178	4000.00	ug/kg	96
11) Phenanthrene-d10	15.600	188	536214	4000.00	ug/kg	107
17) Chrysene-d12	21.509	240	675690	4000.00	ug/kg	100
20) Perylene-d12	26.743	264	617609	4000.00	ug/kg	101
System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.413	172	297892	4811.08	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 120.28%			
15) 4-Terphenyl-d14	18.160	244	583710	4370.85	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery = 109.27%			
Target Compounds						Qvalue
2) Naphthalene	11.067	128	431837	4756.84	ug/kg	100
3) 2-Methyl naphthalene	11.910	142	282882	4951.78	ug/kg	99
4) 1-Methyl naphthalene	12.118	142	255849	4877.39	ug/kg	99
7) Acenaphthylene	13.386	152	429570	5114.51	ug/kg	99
8) Acenaphthene	13.542	153	265597	4991.34	ug/kg	99
9) Dibenzofuran	13.707	168	384477	5099.35	ug/kg	100
10) Fluorene	14.193	166	344510	5414.09	ug/kg	99
12) Phenanthrene	15.643	178	689747	4758.01	ug/kg	98
13) Anthracene	15.686	178	714677	4819.99	ug/kg	98
14) Fluoranthene	17.653	202	893543	4593.78	ug/kg	100
16) Pyrene	18.273	202	896708	4440.95	ug/kg	99
18) Benzo[a]anthracene	21.348	228	856483	4888.77	ug/kg	99
19) Chrysene	21.606	228	798613	4777.24	ug/kg	99
21) Benzo[b]fluoranthene	24.988	252	816512	4899.81	ug/kg	99
22) Benzo[k]fluoranthene	25.068	252	740334	5193.21	ug/kg	99
23) Benzo(j)fluoranthene	25.173	252	698109	5013.74	ug/kg	99
24) Benzo(e)pyrene	26.244	252	769905	4774.49	ug/kg	99
25) Benzo[a]pyrene	26.421	252	756854	4945.77	ug/kg	99
26) Indeno[1,2,3-cd]pyrene	30.020	276	911879	5045.44	ug/kg	93
27) Dibenz[a,h]anthracene	30.012	278	756782	5092.43	ug/kg	96
28) Benzo[g,h,i]perylene	31.139	276	782544	4929.14	ug/kg	96

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160802\
Data File : 16080221.D
Acq On : 2 Aug 2016 11:22 pm
Operator :
Sample : CAL8 (5000 ppb)
Misc : CAL
ALS Vial : 11 Sample Multiplier: 1

Quant Time: Aug 03 10:24:38 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 10:10:50 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160802\
Data File : 16080222.D
Acq On : 3 Aug 2016 12:02 am
Operator :
Sample : SSCV (2500 ppb)
Misc : ICV
ALS Vial : 12 Sample Multiplier: 1

SSCV FOR DIBENZOFURAN AND BENZO(J)FLUORANTHENE.

Quant Time: Aug 03 10:24:41 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 10:10:50 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	11.039	136	409796	4000.00	ug/kg	104
6) Acenaphthene-d10	13.496	164	199013	4000.00	ug/kg	109
11) Phenanthrene-d10	15.597	188	416210	4000.00	ug/kg	83
17) Chrysene-d12	21.508	240	579641	4000.00	ug/kg	86
20) Perylene-d12	26.733	264	555774	4000.00	ug/kg	91

System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.445	172	17	0.25	ug/kg	0.03
Spiked Amount 4000.000	Range 40 - 140		Recovery = 0.01%#			
15) 4-Terphenyl-d14	18.158	244	83	0.80	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery = 0.02%#			

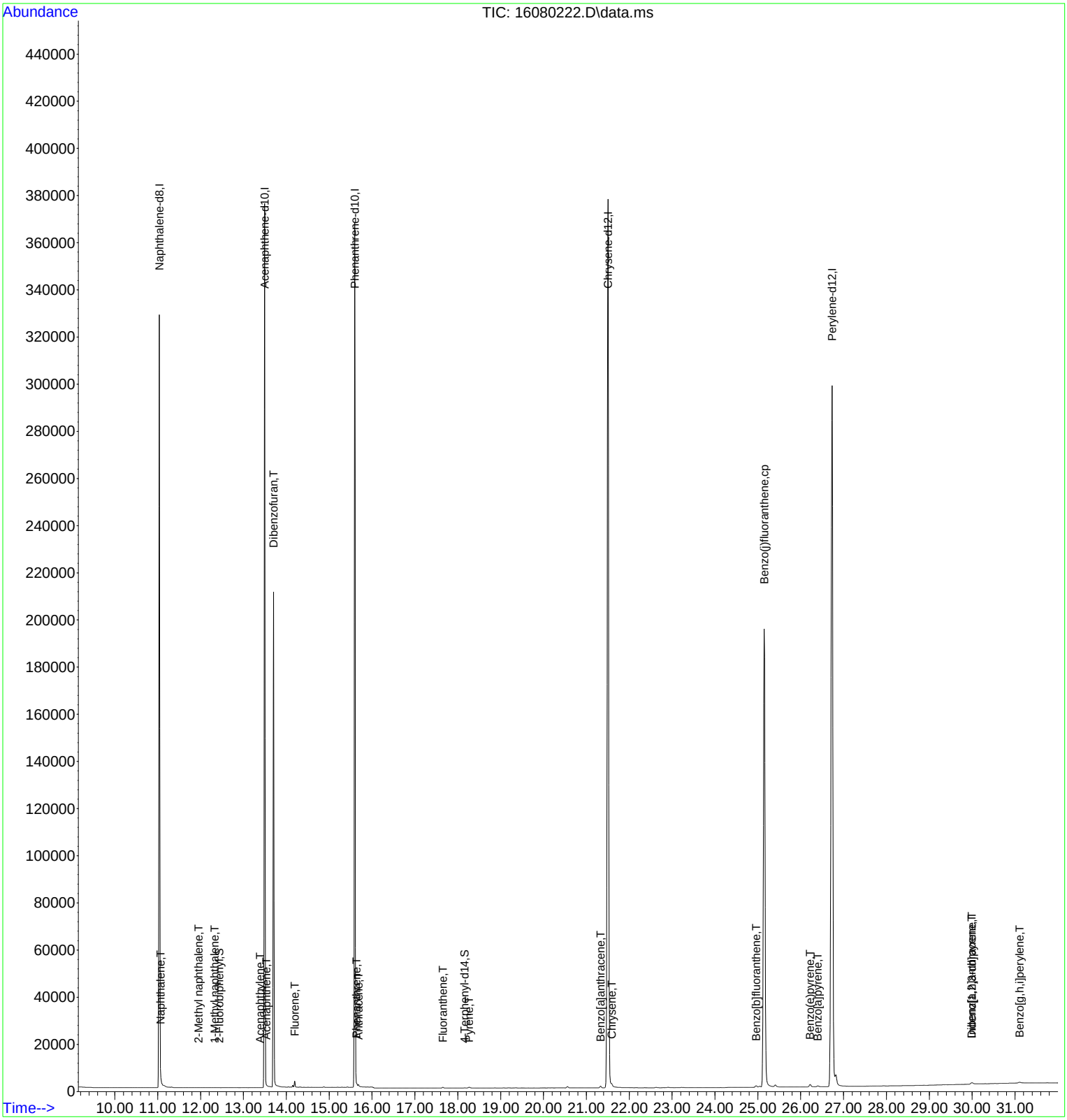
Target Compounds						Qvalue
2) Naphthalene	11.074	128	64	0.64	ug/kg	87
3) 2-Methyl naphthalene	11.950	142	46	0.73	ug/kg	89
4) 1-Methyl naphthalene	12.315	142	3	0.05	ug/kg	91
7) Acenaphthylene	13.383	152	54	0.57	ug/kg	92
8) Acenaphthene	13.539	153	55	0.91	ug/kg	95
9) Dibenzofuran	13.704	168	201819	2356.16	ug/kg	95
10) Fluorene	14.199	166	1707	23.61	ug/kg	98
12) Phenanthrene	15.640	178	344	3.06	ug/kg	95
13) Anthracene	15.684	178	786	6.83	ug/kg	98
14) Fluoranthene	17.651	202	470	3.11	ug/kg	93
16) Pyrene	18.263	202	542	3.46	ug/kg	97
18) Benzo[a]anthracene	21.331	228	1114	7.41	ug/kg	100
19) Chrysene	21.588	228	1022	7.13	ug/kg	98
21) Benzo[b]fluoranthene	24.962	252	1420	9.47	ug/kg	97
22) Benzo[k]fluoranthene	0.000	252	0	N.D.		
23) Benzo(j)fluoranthene	25.147	252	340750	2719.50	ug/kg	100
24) Benzo(e)pyrene	26.218	252	2186	15.06	ug/kg	92
25) Benzo[a]pyrene	26.395	252	1015	7.37	ug/kg	91
26) Indeno[1,2,3-cd]pyrene	29.994	276	1140	7.01	ug/kg	97
27) Dibenz[a,h]anthracene	29.978	278	865	6.47	ug/kg	94
28) Benzo[g,h,i]perylene	31.105	276	977	6.84	ug/kg	99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160802\
Data File : 16080222.D
Acq On : 3 Aug 2016 12:02 am
Operator :
Sample : SSCV (2500 ppb)
Misc : ICV
ALS Vial : 12 Sample Multiplier: 1

Quant Time: Aug 03 10:24:41 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 10:10:50 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160802\
Data File : 16080223.D
Acq On : 3 Aug 2016 12:41 am
Operator :
Sample : SSCV (2500 ppb)
Misc : ICV
ALS Vial : 13 Sample Multiplier: 1

Quant Time: Aug 03 10:24:44 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 10:10:50 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	11.038	136	354743	4000.00	ug/kg	90
6) Acenaphthene-d10	13.495	164	172034	4000.00	ug/kg	94
11) Phenanthrene-d10	15.596	188	502241	4000.00	ug/kg	101
17) Chrysene-d12	21.509	240	626135	4000.00	ug/kg	93
20) Perylene-d12	26.735	264	562739	4000.00	ug/kg	92
System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.419	172	159493	2711.13	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 67.78%			
15) 4-Terphenyl-d14	18.160	244	329186	2631.70	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery = 65.79%			
Target Compounds						Qvalue
2) Naphthalene	11.073	128	203065	2354.28	ug/kg	99
3) 2-Methyl naphthalene	11.906	142	161750	2980.06	ug/kg	99
4) 1-Methyl naphthalene	12.123	142	142715	2863.50	ug/kg	95
7) Acenaphthylene	13.382	152	202502	2455.08	ug/kg	99
8) Acenaphthene	13.547	153	132224	2530.28	ug/kg	96
9) Dibenzofuran	13.712	168	495	6.69	ug/kg	88
10) Fluorene	14.190	166	163278	2612.86	ug/kg	99
12) Phenanthrene	15.640	178	319541	2353.36	ug/kg	99
13) Anthracene	15.683	178	319725	2302.18	ug/kg	99
14) Fluoranthene	17.645	202	446111	2448.63	ug/kg	99
16) Pyrene	18.264	202	451874	2389.28	ug/kg	99
18) Benzo[a]anthracene	21.340	228	413562	2547.42	ug/kg	100
19) Chrysene	21.598	228	341645	2205.44	ug/kg	100
21) Benzo[b]fluoranthene	24.971	252	396136	2608.96	ug/kg	100
22) Benzo[k]fluoranthene	25.052	252	366344	2820.36	ug/kg	99
23) Benzo(j)fluoranthene	0.000	252	0	N.D.		
24) Benzo(e)pyrene	26.227	252	383637	2611.06	ug/kg	100
25) Benzo[a]pyrene	26.405	252	367902	2638.52	ug/kg	99
26) Indeno[1,2,3-cd]pyrene	30.004	276	425376	2583.10	ug/kg	99
27) Dibenz[a,h]anthracene	29.995	278	349484	2581.00	ug/kg	100
28) Benzo[g,h,i]perylene	31.123	276	362596	2506.64	ug/kg	100

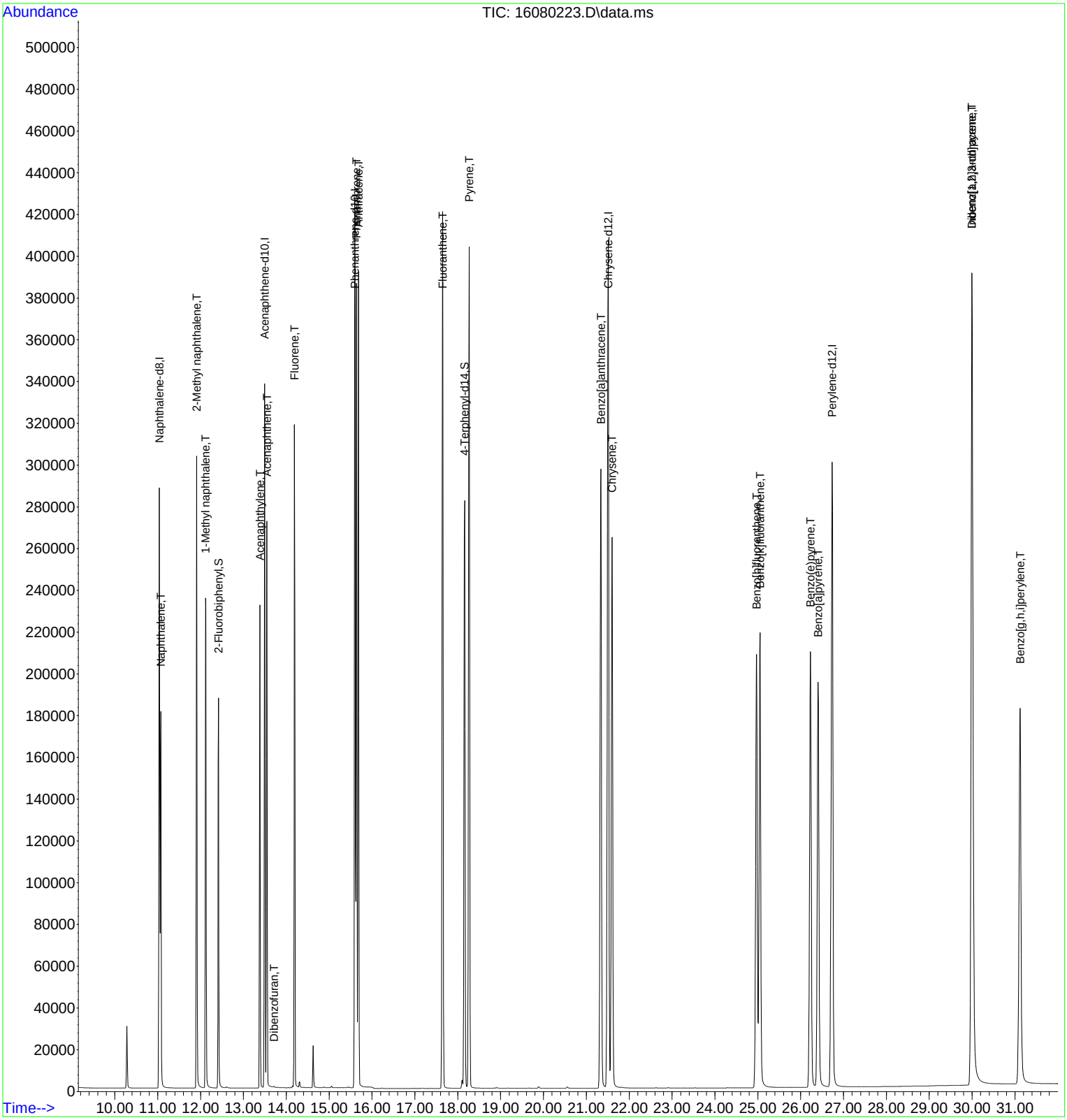
(#) = qualifier out of range (m) = manual integration (+) = signals summed

REVIEWED/APPROVED
By Sherri Herschmann at 10:31:43 AM, 8/10/2016

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160802\
Data File : 16080223.D
Acq On : 3 Aug 2016 12:41 am
Operator :
Sample : SSCV (2500 ppb)
Misc : ICV
ALS Vial : 13 Sample Multiplier: 1

Quant Time: Aug 03 10:24:44 2016
Quant Method : C:\msdchem\1\METHODS\PAH160802.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Wed Aug 03 10:10:50 2016
Response via : Initial Calibration



CAL ID: 682

Method 8270 PAH Calibration Curve Sheet

Instrument ID: GCMS #8 **Calibration File Name:** PAH160806.CAL

Target Concentration	Solvent Amount mL	Standard Preparation Stocks and Surrogate (µL/mL)	Final Volume mL
5 ppb	0.999	0.001 mL of 5000 ppb	1
10 ppb	0.998	0.002 mL of 5000 ppb	1
50 ppb	0.990	0.01 mL of 5000 ppb	1
100 ppb	0.980	0.02 mL of 5000 ppb	1
500 ppb	0.900	0.10 mL of 5000 ppb	1
1000 ppb	0.800	0.20 mL of 5000 ppb	1
2000 ppb	0.600	0.40 mL of 5000 ppb	1
5000 ppb	----	PAHCAL160805	10
SSCV 2500 ppb	0.500	0.50 mL of PAHSSCV160806-1	1
SSCV 2500 ppb	----	PAHSSCV160806-2	1

Standards Used for the Calibration Curve

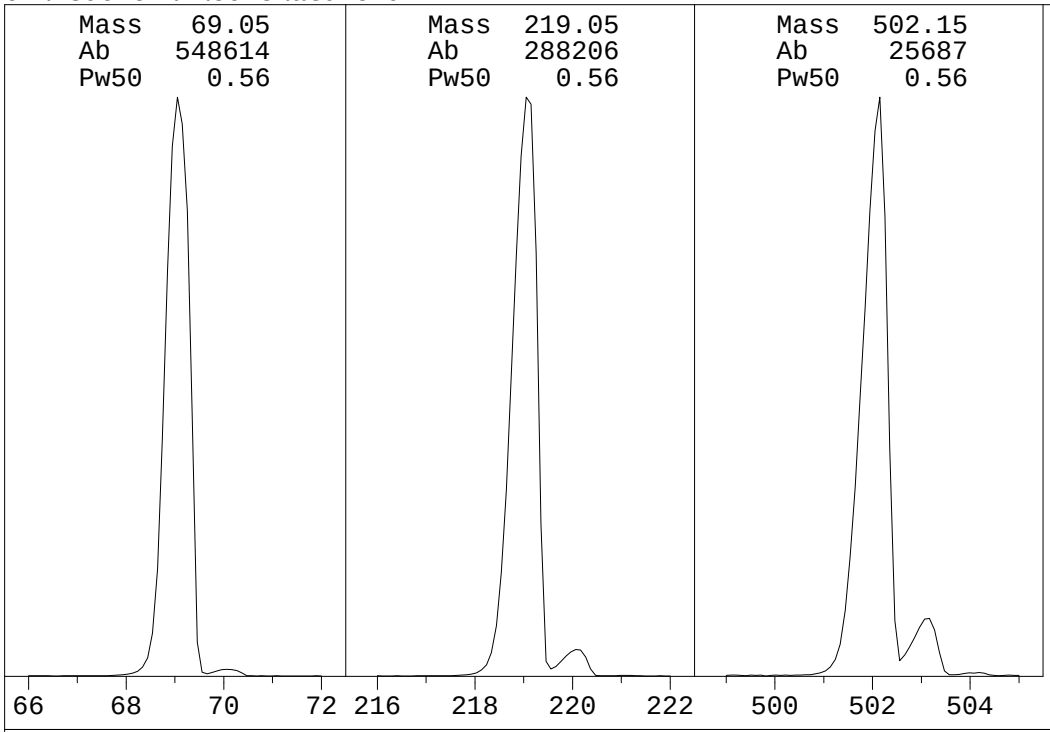
Primary Stock STDs	DHL Standard ID	Second Source (SS) Stock STDs	DHL Standard ID
5 PPM (5000 PPB) PAH CAL STD	**PAHCAL160805**	5PPM (5000PPB) PAH SSCV STD	**PAHSSCV160806-1**
		2.5PPM (2500PPB) PAH SSCV STD	**PAHSSCV160806-2**

Review Item	Acceptance Criteria	Yes	No	N/A	2nd Level Review
1. Are all standards within expiration dates?	Primary Stocks = 1 year Intermediate Standards = 6 months	X			X
2. Are all manual integrations listed on MI tracking form? **(DoD Projects only)**	Manual Integration Tracking Form			X	
3. Does the tune and resolution check meet criteria?	Benzo(b) / Benzo(k)phenanthrene Valley > 50% See Tune Eval Report	X			
4. Does the ICAL curve meet criteria? Use average CF only if %RSD < 15%	%RSD < 15% COD ≥ 0.990	X			
5. Has the low point been reprocessed under the new ICAL curve and meets criteria?	70-130% recovery	X			
6. Has the SSCV been analyzed and meets criteria?	80-120% recovery	X			

Analyst: Don Winston Date: 08/8/2016

Second-Level Review: Date: 08/10/2016

Sat Aug 06 12:54:50 2016 Instrument: GCMS #8
C:\msdchem\1\5973\atune.u

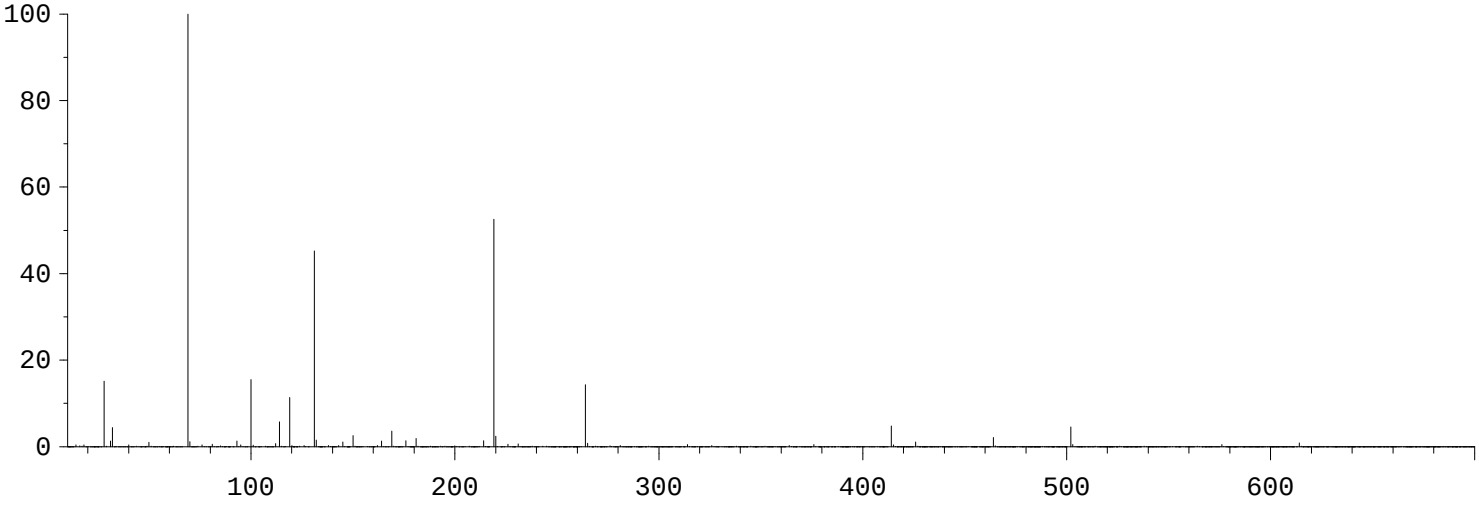


Ion Pol	POS	MassGain	45
		MassOffs	-11
Emission	34.6	AmuGain	2078
EIEnrgy	69.9	AmuOffs	135
Filament	1	Wid219	0.004
		DC Pol	NEG
Repeller	32.13		
IonFcus	101.5	HEDEnab	ON
EntLens	14.5	EMVolts	1271
EntOffs	22.09		
		Samples	8
PFTBA	OPEN	Averages	3
		Stepsize	0.10

Zones:

MS Source	230	Foreline	44
MS Quad	150		

Scan: 10.00 - 700.00 Samples: 8 Thresh: 0 Step: 0.10
1023 peaks Base: 69.05 Abundance: 494208



Mass	Abund	Rel Abund	Iso Mass	Iso Abund	Iso Ratio
69.05	494208	100.00	70.05	5768	1.17
219.05	259712	52.55	220.05	11813	4.55
502.05	22360	4.52	503.05	2309	10.33

Air/Water Check: H20~0.41% N2~15.16% O2~4.39% CO2~0.09% N2/H2O~3688.19%

Column Flow: Front: 0 Back: 0 ml/min. Interface Temp: 310

Ramp Criteria:
Ion Focus Maximum 125 volts using ion 219; EM Gain 5358
Repeller Maximum 38 volts using ion 502;

MassGain Values @Samples: 45@3 45@2 45@1 45@0 45@FS

TARGET MASS:	50	69	131	219	414	502	800
Amu Offset:	135.0	135.0	135.0	135.0	135.0	135.0	135.0
Entrance Lens Offset:	22.1	22.1	22.1	22.1	22.1	22.1	22.1

Response Factor Report GCMS #8

Method Path : C:\msdchem\1\METHODS\
Method File : PAH160806.M
Title : CLP BNA Calibration - Large Volume Injection
Last Update : Sun Aug 07 12:43:55 2016
Response Via : Initial Calibration

Calibration Files
1 =16080602.D 2 =16080603.D 3 =16080604.D 4 =16080605.D 5 =16080606.D 6 =16080607.D 7 =16080608.D
8 =16080609.D

		Compound	1	2	3	4	5	6	7	8	Avg	%RSD	Fit	RSD/CF	Constant	Linear	Quad
1)	I	Naphthalene-d8	----------ISTD----------														
2)	T	Naphthalene	1.106	1.004	0.959	0.923	0.919	0.917	0.895	0.909	0.954	7.38	A	0.0738	0.0000	0.9541	0.0000
3)	T	2-Methyl napht...	0.710	0.662	0.666	0.638	0.648	0.636	0.616	0.626	0.650	4.52	A	0.0452	0.0000	0.6504	0.0000
4)	T	1-Methyl napht...	0.678	0.626	0.603	0.589	0.588	0.581	0.555	0.565	0.598	6.55	A	0.0655	0.0000	0.5979	0.0000
5)	S	2-Fluorobiphenyl	1.119	0.977	0.918	0.872	0.846	0.826	0.780	0.781	0.890	12.82	A	0.1282	0.0000	0.8899	0.0000
6)	I	Acenaphthene-d10	----------ISTD----------														
7)	T	Acenaphthylene	1.974	1.905	1.823	1.781	1.810	1.851	1.802	1.859	1.851	3.40	A	0.0340	0.0000	1.8506	0.0000
8)	T	Acenaphthene	1.373	1.258	1.196	1.157	1.173	1.182	1.146	1.191	1.209	6.13	A	0.0613	0.0000	1.2094	0.0000
9)	T	Dibenzofuran	2.346	2.147	2.079	2.021	1.983	2.027	1.992	2.011	2.076	5.86	A	0.0586	0.0000	2.0758	0.0000
10)	T	Fluorene	1.920	1.861	1.747	1.690	1.727	1.784	1.813	1.818	1.795	4.15	A	0.0415	0.0000	1.7950	0.0000
11)	I	Phenanthrene-d10	----------ISTD----------														
12)	T	Phenanthrene	1.537	1.270	1.107	1.066	1.040	1.036	1.016	0.980	1.132	16.45	*Q	1.0000	0.0006	1.0426	-0.0508
13)	T	Anthracene	1.130	1.028	1.022	1.049	1.034	1.049	1.030	1.010	1.044	3.55	A	0.0355	0.0000	1.0441	0.0000
14)	T	Fluoranthene	1.171	1.085	1.076	1.066	1.080	1.100	1.074	1.033	1.086	3.64	A	0.0364	0.0000	1.0857	0.0000
15)	S	4-Terphenyl-d14	0.777	0.702	0.706	0.679	0.708	0.706	0.692	0.656	0.703	4.91	A	0.0491	0.0000	0.7032	0.0000
16)	T	Pyrene	1.167	1.081	1.085	1.064	1.092	1.097	1.074	1.024	1.086	3.68	A	0.0368	0.0000	1.0855	0.0000
17)	I	Chrysene-d12	----------ISTD----------														
18)	T	Benzo[a]anthra...	1.085	0.998	0.954	0.980	0.991	1.020	1.006	1.026	1.007	3.86	A	0.0386	0.0000	1.0074	0.0000
19)	T	Chrysene	1.033	0.929	0.923	0.934	0.947	0.968	0.941	0.952	0.954	3.69	A	0.0369	0.0000	0.9535	0.0000
20)	I	Perylene-d12	----------ISTD----------														
21)	T	Benzo[b]fluora...	1.078	0.948	0.939	0.981	1.003	1.063	1.035	1.067	1.014	5.37	A	0.0537	0.0000	1.0142	0.0000
22)	T	Benzo[k]fluora...	0.788	0.739	0.765	0.811	0.895	0.911	0.932	0.916	0.845	9.13	A	0.0913	0.0000	0.8448	0.0000
23)	cp	Benzo(j)fluora...	0.801	0.747	0.752	0.759	0.842	0.900	0.884	0.874	0.820	7.72	A	0.0772	0.0000	0.8197	0.0000
24)	T	Benzo(e)pyrene	1.111	1.037	0.978	0.932	0.991	1.004	0.994	1.028	1.009	5.17	A	0.0517	0.0000	1.0092	0.0000
25)	T	Benzo[a]pyrene	0.988	0.930	0.885	0.909	0.945	0.973	0.964	0.999	0.949	4.17	A	0.0417	0.0000	0.9491	0.0000
26)	T	Indeno[1,2,3-c...	1.234	1.125	1.112	1.141	1.179	1.196	1.194	1.237	1.177	4.01	A	0.0401	0.0000	1.1773	0.0000
27)	T	Dibenz[a,h]ant...	0.984	0.869	0.876	0.901	0.952	0.970	0.979	1.022	0.944	5.89	A	0.0589	0.0000	0.9440	0.0000
28)	T	Benzo[g,h,i]pe...	1.169	1.031	1.025	1.018	1.018	1.028	1.015	1.056	1.045	4.94	A	0.0494	0.0000	1.0451	0.0000

(#) = Out of Range

Sequence Name: C:\msdchem\1\sequence\160806.S
Comment:
Operator:
Data Path: C:\MSDCHEM\1\DATA\160806\
Instrument Name: GCMS #8
Instrument Control Pre-Seq Cmd:
Data Analysis Pre-Seq Cmd:

Instrument Control Post-Seq Cmd:
Data Analysis Post-Seq Cmd:

Method Sections To Run
(X) Full Method
( ) Reprocessing Only

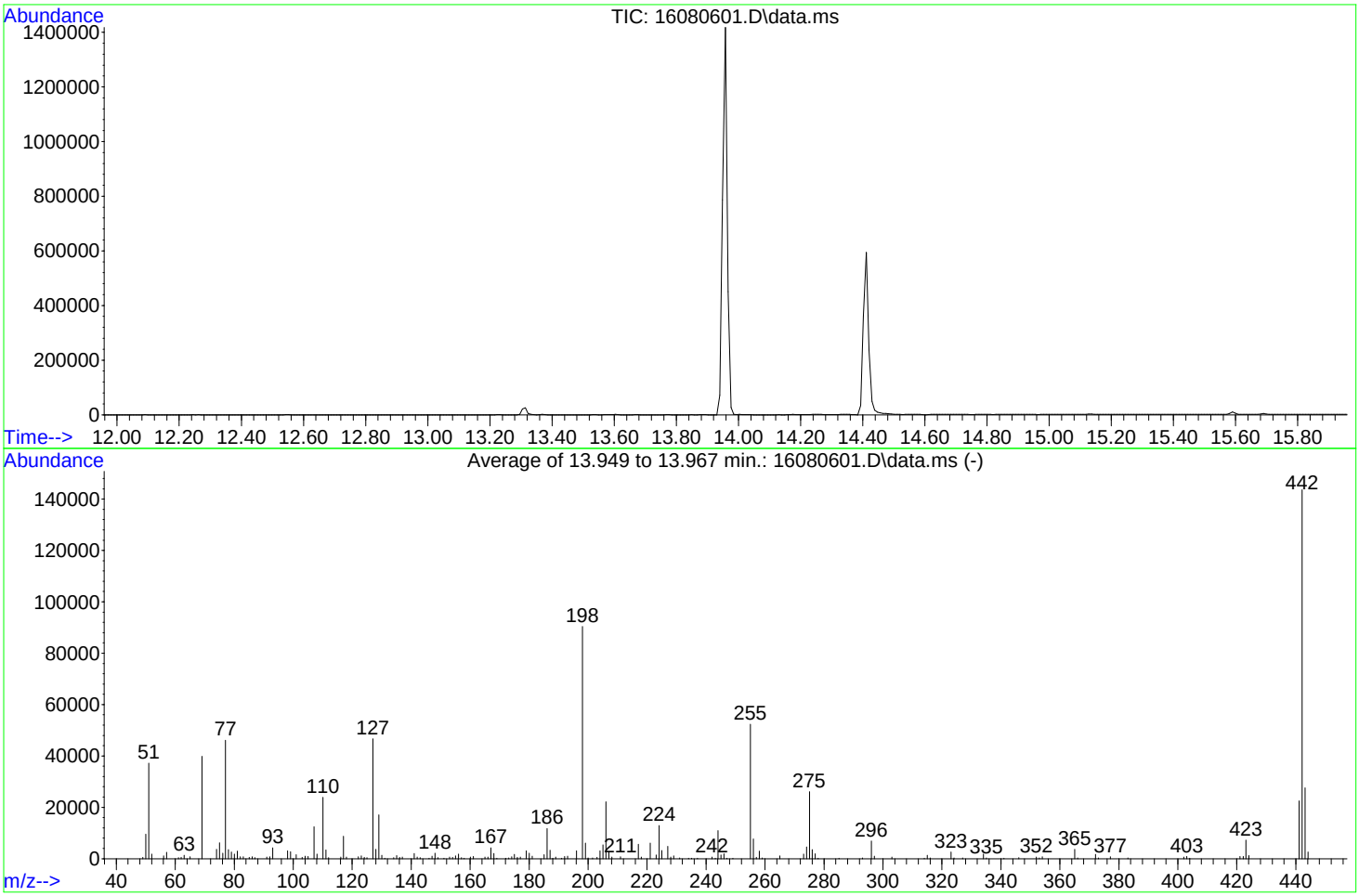
On A Barcode Mismatch
(X) Inject Anyway
( ) Don't Inject

Line			Sample Name/Misc Info		
1)	Sample	12	16080612	DFTPPPAH	DFTPP-160805
2)	Sample	13	16080613	PAH160802	ICV-160806
3)	Sample	14	16080614	PAH160802	LCS-76511
4)	Sample	15	16080615	PAH160802	MB-76511
5)	Sample	16	16080616	PAH160802	1607256-28A
6)	Sample	17	16080617	PAH160802	1607265-07A
7)	Sample	18	16080618	PAH160802	1607265-08A
8)	Sample	19	16080619	PAH160802	1607265-09A
9)	Sample	20	16080620	PAH160802	1607265-10A
10)	Sample	21	16080621	PAH160802	1607265-11A
11)	Sample	22	16080622	PAH160802	1607265-12A
12)	Sample	23	16080623	PAH160802	1607265-14A
13)	Sample	24	16080624	PAH160802	1607265-15A
14)	Sample	25	16080625	PAH160802	1607265-16A
15)	Sample	26	16080626	PAH160802	1607265-17A
16)	Sample	27	16080627	PAH160802	1607265-18A
17)	Sample	28	16080628	PAH160802	1607265-19A
18)	Sample	29	16080629	DFTPPPAH	DFTPP2-160806
19)	Sample	30	16080630	PAH160802	ICV2-160806
20)	Sample	31	16080631	PAH160802	SBLK
21)	Sample	32	16080632	PAH160802	SB-160808
22)	Sample	33	16080633	PAH160802	1607265-20A
23)	Sample	34	16080634	PAH160802	1607265-21A
24)	Sample	35	16080635	PAH160802	1607265-22A
25)	Sample	36	16080636	PAH160802	1607265-23A
26)	Sample	37	16080637	PAH160802	1607265-24A
27)	Sample	38	16080638	PAH160802	1607265-25A
28)	Sample	39	16080639	PAH160802	1607265-18AMS
29)	Sample	40	16080640	PAH160802	1607265-18AMSD
30)	Sample	41	16080641	PAH160802	CCV1-160806

Data Path : C:\msdchem\1\DATA\160806\
Data File : 16080601.D
Acq On : 6 Aug 2016 12:58 pm
Operator :
Sample : DFTPP-160806
Misc : TUNE
ALS Vial : 1 Sample Multiplier: 1

Integration File: RTEINT.P

Method : C:\msdchem\1\METHODS\DFTPPPAH.M
Title : CLP BNA Calibration - Large Volume Injection
Last Update : Thu Aug 27 07:24:43 2015



AutoFind: Scans 426, 427, 428; Background Corrected with Scan 422

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	10	80	41.1	37199	PASS
68	69	0.00	2	0.0	0	PASS
69	198	0.00	100	44.1	39855	PASS
70	69	0.00	2	0.0	0	PASS
127	198	10	80	51.6	46653	PASS
197	198	0.00	2	0.0	0	PASS
198	198	100	100	100.0	90418	PASS
199	198	5	9	6.8	6121	PASS
275	198	10	60	28.8	26052	PASS
365	198	1	200	4.0	3598	PASS
441	442	0.01	24	15.7	22565	PASS
442	198	50	400	158.9	143658	PASS
443	442	15	24	19.2	27558	PASS

REVIEWED/APPROVED
By Sherri Herschmann at 12:07:33 PM, 8/10/2016

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160806\
Data File : 16080602.D
Acq On : 6 Aug 2016 1:37 pm
Operator :
Sample : CAL1 (5 ppb)
Misc : CAL1
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Aug 08 07:59:57 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration

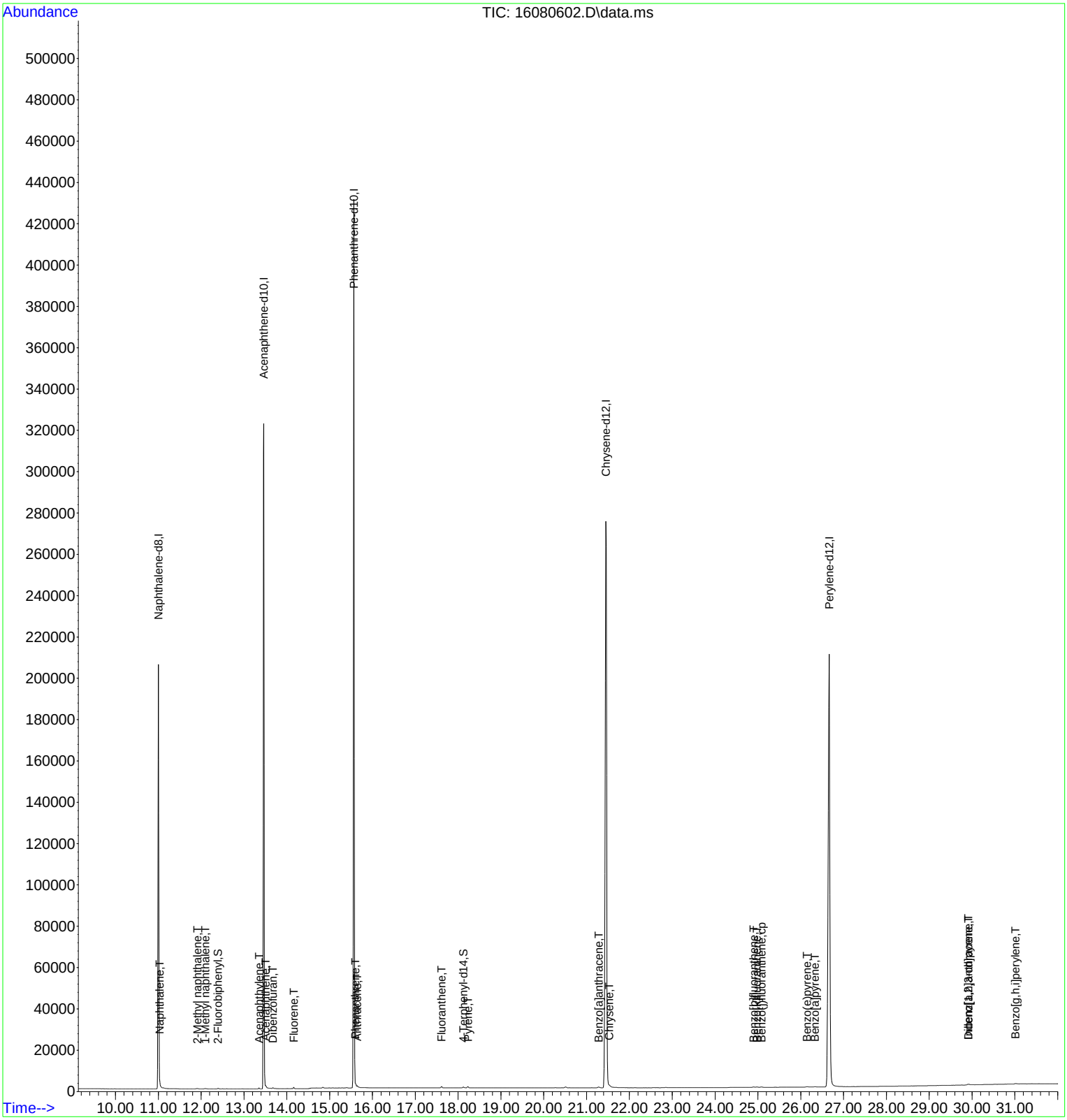
Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	11.001	136	252361	4000.00	ug/kg	95
6) Acenaphthene-d10	13.463	164	178320	4000.00	ug/kg	110
11) Phenanthrene-d10	15.567	188	500638	4000.00	ug/kg	97
17) Chrysene-d12	21.448	240	428962	4000.00	ug/kg	93
20) Perylene-d12	26.664	264	384584	4000.00	ug/kg	91
System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.392	172	353	6.29	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 0.16%#			
15) 4-Terphenyl-d14	18.122	244	486	5.52	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery = 0.14%#			
Target Compounds						Qvalue
2) Naphthalene	11.037	128	349	5.80	ug/kg	99
3) 2-Methyl naphthalene	11.909	142	224	5.46	ug/kg	98
4) 1-Methyl naphthalene	12.094	142	214	5.67	ug/kg	91
7) Acenaphthylene	13.349	152	440	5.33	ug/kg	99
8) Acenaphthene	13.512	153	306	5.68	ug/kg	98
9) Dibenzofuran	13.675	168	523	5.65	ug/kg	99
10) Fluorene	14.158	166	428	5.35	ug/kg	99
12) Phenanthrene	15.606	178	962	5.01	ug/kg	99
13) Anthracene	15.644	178	707	5.41	ug/kg	98
14) Fluoranthene	17.611	202	733	5.39	ug/kg	98
16) Pyrene	18.228	202	730	5.37	ug/kg	97
18) Benzo[a]anthracene	21.284	228	582	5.39	ug/kg	98
19) Chrysene	21.535	228	554	5.42	ug/kg	100
21) Benzo[b]fluoranthene	24.899	252	518	5.31	ug/kg	98
22) Benzo[k]fluoranthene	24.976	252	379	4.67	ug/kg	99
23) Benzo(j)fluoranthene	25.083	252	385	4.89	ug/kg	90
24) Benzo(e)pyrene	26.153	252	534	5.50	ug/kg	92
25) Benzo[a]pyrene	26.326	252	475	5.21	ug/kg	93
26) Indeno[1,2,3-cd]pyrene	29.922	276	593	5.24	ug/kg	99
27) Dibenz[a,h]anthracene	29.912	278	473	5.21	ug/kg	92
28) Benzo[g,h,i]perylene	31.021	276	562	5.59	ug/kg	97

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160806\
Data File : 16080602.D
Acq On : 6 Aug 2016 1:37 pm
Operator :
Sample : CAL1 (5 ppb)
Misc : CAL1
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Aug 08 07:59:57 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160806\
Data File : 16080603.D
Acq On : 6 Aug 2016 2:17 pm
Operator :
Sample : CAL2 (10 ppb)
Misc : CAL
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Aug 08 08:00:01 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration

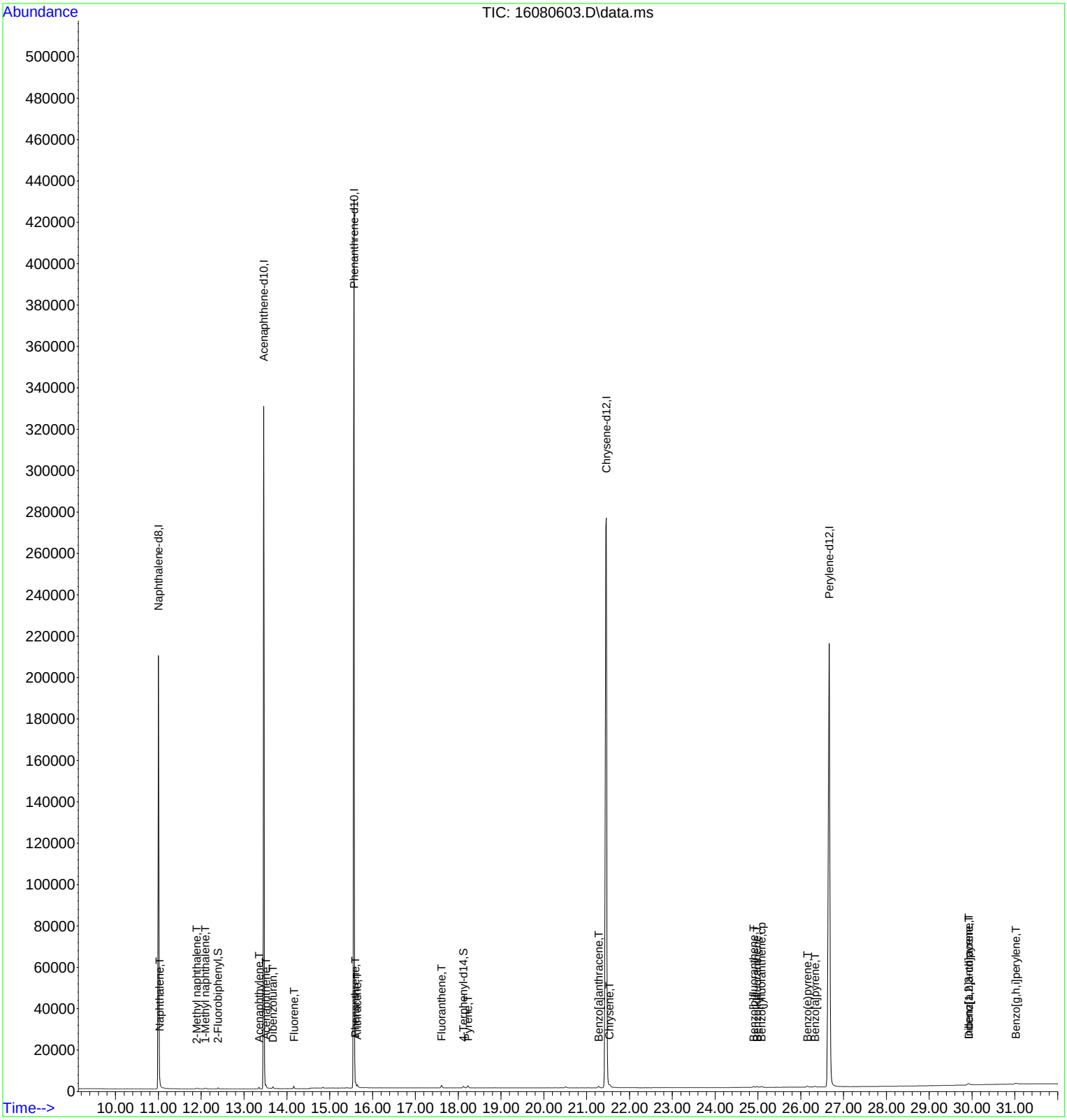
Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	11.001	136	260907	4000.00	ug/kg	99
6) Acenaphthene-d10	13.462	164	173258	4000.00	ug/kg	107
11) Phenanthrene-d10	15.567	188	498791	4000.00	ug/kg	97
17) Chrysene-d12	21.457	240	438240	4000.00	ug/kg	95
20) Perylene-d12	26.663	264	396275	4000.00	ug/kg	94
System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.398	172	637	10.97	ug/kg	0.01
Spiked Amount 4000.000	Range 40 - 140		Recovery = 0.27%#			
15) 4-Terphenyl-d14	18.122	244	876	9.99	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery = 0.25%#			
Target Compounds						Qvalue
2) Naphthalene	11.036	128	655	10.52	ug/kg	99
3) 2-Methyl naphthalene	11.894	142	432	10.18	ug/kg	98
4) 1-Methyl naphthalene	12.093	142	408	10.46	ug/kg	97
7) Acenaphthylene	13.348	152	825	10.29	ug/kg	99
8) Acenaphthene	13.511	153	545	10.40	ug/kg	97
9) Dibenzofuran	13.675	168	930	10.34	ug/kg	100
10) Fluorene	14.164	166	806	10.37	ug/kg	100
12) Phenanthrene	15.605	178	1584	9.82	ug/kg	99
13) Anthracene	15.644	178	1282	9.85	ug/kg	99
14) Fluoranthene	17.611	202	1353	9.99	ug/kg	97
16) Pyrene	18.228	202	1348	9.96	ug/kg	96
18) Benzo[a]anthracene	21.284	228	1093	9.90	ug/kg	98
19) Chrysene	21.544	228	1018	9.74	ug/kg	100
21) Benzo[b]fluoranthene	24.899	252	939	9.35	ug/kg	96
22) Benzo[k]fluoranthene	24.976	252	732	8.75	ug/kg	98
23) Benzo(j)fluoranthene	25.082	252	740	9.11	ug/kg	99
24) Benzo(e)pyrene	26.152	252	1027	10.27	ug/kg	85
25) Benzo[a]pyrene	26.335	252	921	9.80	ug/kg	93
26) Indeno[1,2,3-cd]pyrene	29.922	276	1115	9.56	ug/kg	94
27) Dibenz[a,h]anthracene	29.912	278	861	9.21	ug/kg	98
28) Benzo[g,h,i]perylene	31.021	276	1021	9.86	ug/kg	95

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160806\
Data File : 16080603.D
Acq On : 6 Aug 2016 2:17 pm
Operator :
Sample : CAL2 (10 ppb)
Misc : CAL
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Aug 08 08:00:01 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160806\
Data File : 16080604.D
Acq On : 6 Aug 2016 2:57 pm
Operator :
Sample : CAL3 (50 ppb)
Misc : CAL
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Aug 08 08:00:05 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	11.001	136	266813	4000.00	ug/kg	101
6) Acenaphthene-d10	13.462	164	173590	4000.00	ug/kg	107
11) Phenanthrene-d10	15.567	188	486221	4000.00	ug/kg	94
17) Chrysene-d12	21.457	240	442610	4000.00	ug/kg	96
20) Perylene-d12	26.663	264	397777	4000.00	ug/kg	95

System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.391	172	3061	51.57	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 1.29%#			
15) 4-Terphenyl-d14	18.122	244	4291	50.20	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery = 1.26%#			

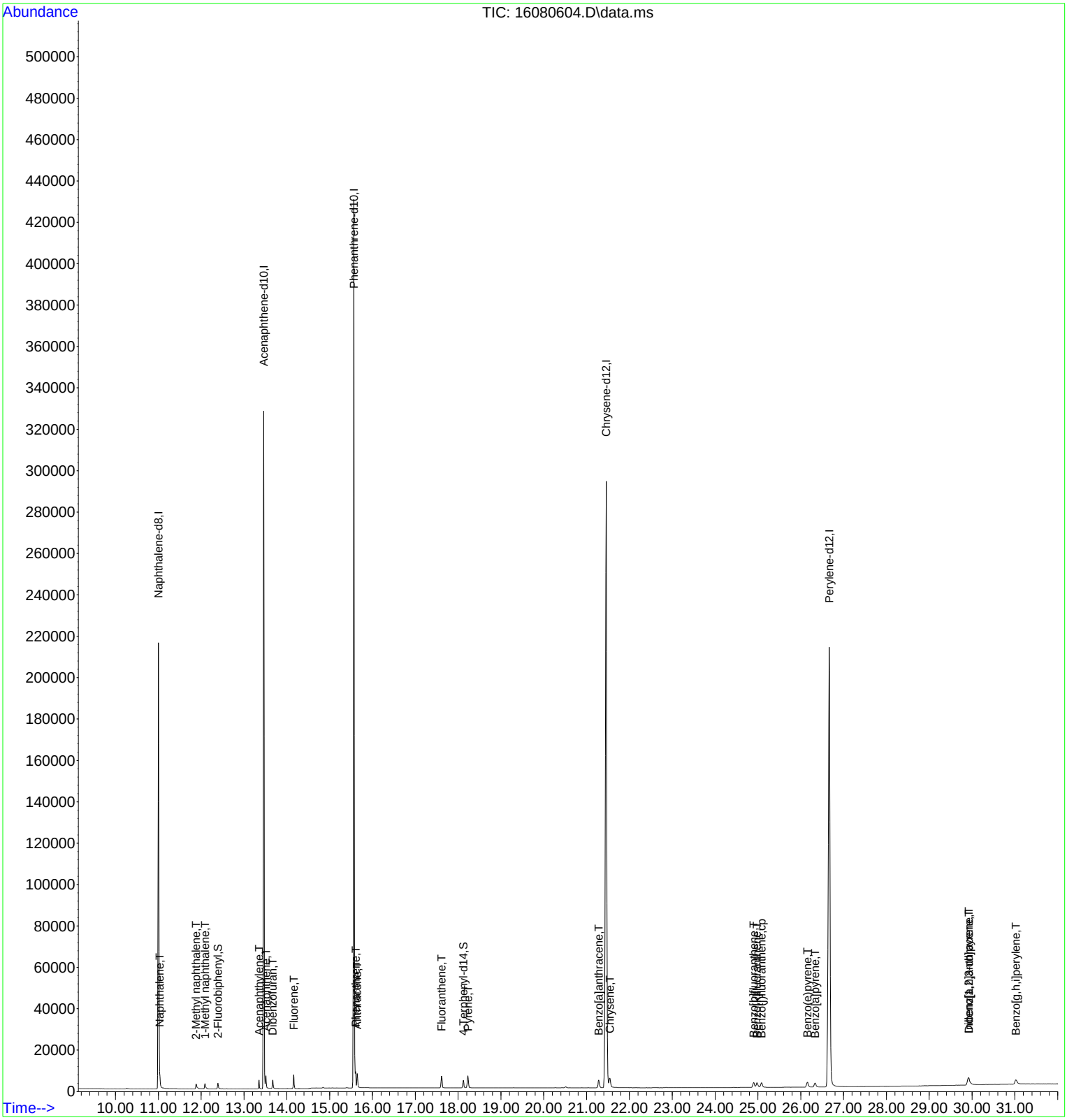
Target Compounds						Qvalue
2) Naphthalene	11.037	128	3197	50.23	ug/kg	100
3) 2-Methyl naphthalene	11.881	142	2222	51.22	ug/kg	99
4) 1-Methyl naphthalene	12.094	142	2011	50.42	ug/kg	98
7) Acenaphthylene	13.349	152	3956	49.26	ug/kg	99
8) Acenaphthene	13.512	153	2595	49.44	ug/kg	99
9) Dibenzofuran	13.675	168	4512	50.09	ug/kg	88
10) Fluorene	14.157	166	3791	48.67	ug/kg	98
12) Phenanthrene	15.605	178	6726	50.74	ug/kg	99
13) Anthracene	15.644	178	6211	48.94	ug/kg	99
14) Fluoranthene	17.611	202	6538	49.54	ug/kg	97
16) Pyrene	18.228	202	6597	50.00	ug/kg	98
18) Benzo[a]anthracene	21.284	228	5278	47.35	ug/kg	99
19) Chrysene	21.544	228	5108	48.41	ug/kg	100
21) Benzo[b]fluoranthene	24.899	252	4670	46.30	ug/kg	100
22) Benzo[k]fluoranthene	24.976	252	3804	45.28	ug/kg	99
23) Benzo(j)fluoranthene	25.082	252	3737	45.84	ug/kg	99
24) Benzo(e)pyrene	26.152	252	4861	48.44	ug/kg	98
25) Benzo[a]pyrene	26.335	252	4399	46.61	ug/kg	99
26) Indeno[1,2,3-cd]pyrene	29.922	276	5529	47.23	ug/kg	100
27) Dibenz[a,h]anthracene	29.912	278	4354	46.38	ug/kg	98
28) Benzo[g,h,i]perylene	31.021	276	5097	49.04	ug/kg	96

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160806\
Data File : 16080604.D
Acq On : 6 Aug 2016 2:57 pm
Operator :
Sample : CAL3 (50 ppb)
Misc : CAL
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Aug 08 08:00:05 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160806\
Data File : 16080605.D
Acq On : 6 Aug 2016 3:37 pm
Operator :
Sample : CAL4 (100 ppb)
Misc : CAL
ALS Vial : 5 Sample Multiplier: 1

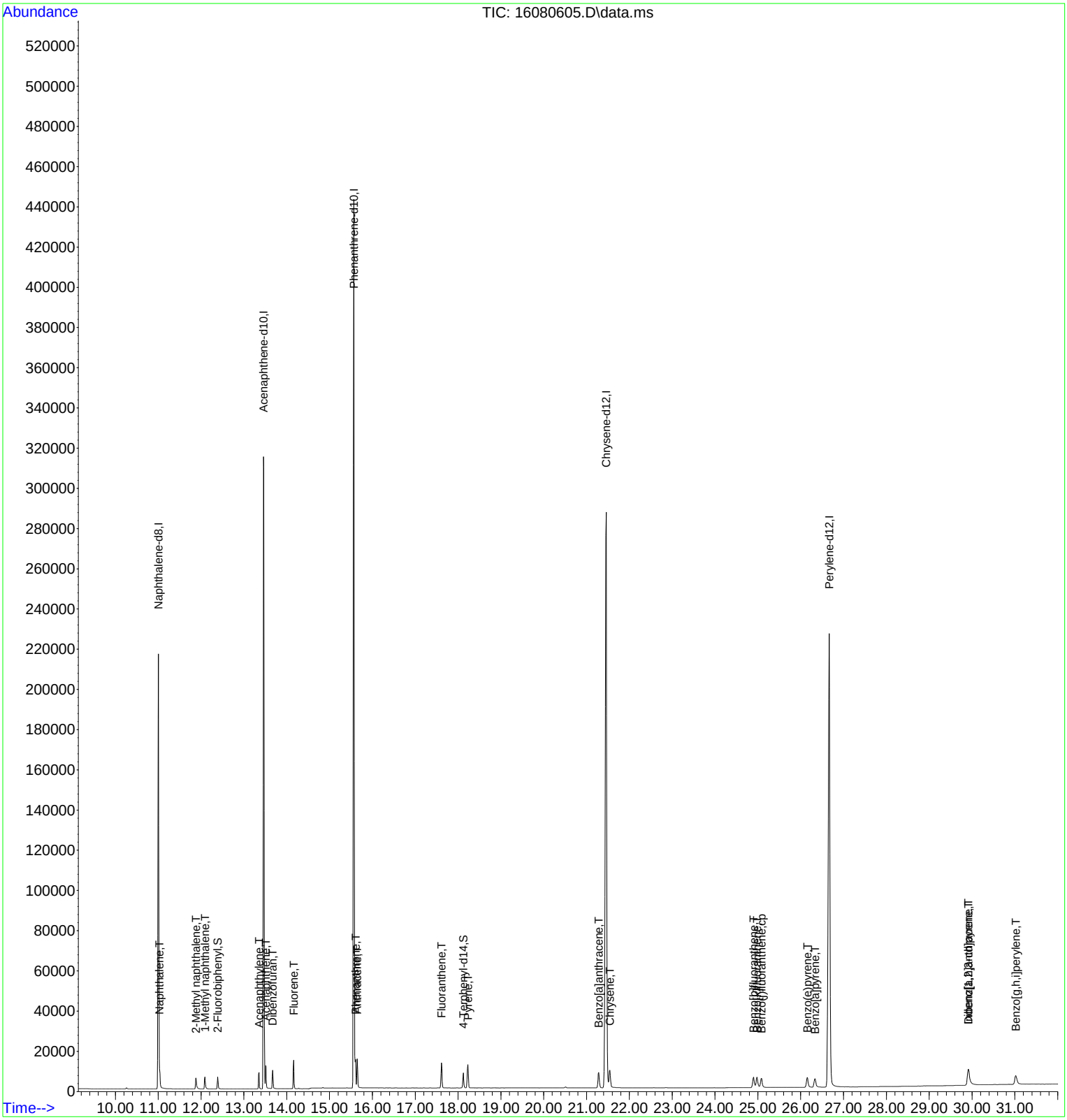
Quant Time: Aug 08 08:00:08 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	11.004	136	274991	4000.00	ug/kg	104
6) Acenaphthene-d10	13.458	164	178176	4000.00	ug/kg	110
11) Phenanthrene-d10	15.568	188	502679	4000.00	ug/kg	98
17) Chrysene-d12	21.458	240	453820	4000.00	ug/kg	98
20) Perylene-d12	26.664	264	411967	4000.00	ug/kg	98
System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.387	172	5998	98.05	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 2.45%#			
15) 4-Terphenyl-d14	18.122	244	8527	96.49	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery = 2.41%#			
Target Compounds						Qvalue
2) Naphthalene	11.032	128	6346	96.74	ug/kg	99
3) 2-Methyl naphthalene	11.883	142	4384	98.05	ug/kg	97
4) 1-Methyl naphthalene	12.089	142	4046	98.43	ug/kg	100
7) Acenaphthylene	13.351	152	7933	96.24	ug/kg	99
8) Acenaphthene	13.507	153	5152	95.63	ug/kg	98
9) Dibenzofuran	13.671	168	9001	97.35	ug/kg	99
10) Fluorene	14.160	166	7530	94.18	ug/kg	99
12) Phenanthrene	15.606	178	13400	100.04	ug/kg	100
13) Anthracene	15.645	178	13186	100.49	ug/kg	99
14) Fluoranthene	17.611	202	13402	98.22	ug/kg	96
16) Pyrene	18.228	202	13367	97.99	ug/kg	97
18) Benzo[a]anthracene	21.285	228	11119	97.28	ug/kg	99
19) Chrysene	21.545	228	10594	97.93	ug/kg	99
21) Benzo[b]fluoranthene	24.900	252	10106	96.75	ug/kg	100
22) Benzo[k]fluoranthene	24.977	252	8356	96.03	ug/kg	99
23) Benzo(j)fluoranthene	25.083	252	7814	92.56	ug/kg	99
24) Benzo(e)pyrene	26.153	252	9595	92.31	ug/kg	97
25) Benzo[a]pyrene	26.336	252	9362	95.78	ug/kg	99
26) Indeno[1,2,3-cd]pyrene	29.922	276	11756	96.95	ug/kg	97
27) Dibenz[a,h]anthracene	29.913	278	9284	95.49	ug/kg	100
28) Benzo[g,h,i]perylene	31.021	276	10489	97.45	ug/kg	97

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : C:\msdchem\1\DATA\160806\
Data File : 16080605.D
Acq On : 6 Aug 2016 3:37 pm
Operator :
Sample : CAL4 (100 ppb)
Misc : CAL
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Aug 08 08:00:08 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160806\
Data File : 16080606.D
Acq On : 6 Aug 2016 4:16 pm
Operator :
Sample : CAL5 (500 ppb)
Misc : CAL
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Aug 08 08:00:11 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	11.000	136	278244	4000.00	ug/kg	105
6) Acenaphthene-d10	13.461	164	175636	4000.00	ug/kg	108
11) Phenanthrene-d10	15.568	188	507329	4000.00	ug/kg	99
17) Chrysene-d12	21.458	240	462988	4000.00	ug/kg	100
20) Perylene-d12	26.664	264	416937	4000.00	ug/kg	99

System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.383	172	29434	475.52	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 11.89%#			
15) 4-Terphenyl-d14	18.123	244	44894	503.34	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery = 12.58%#			

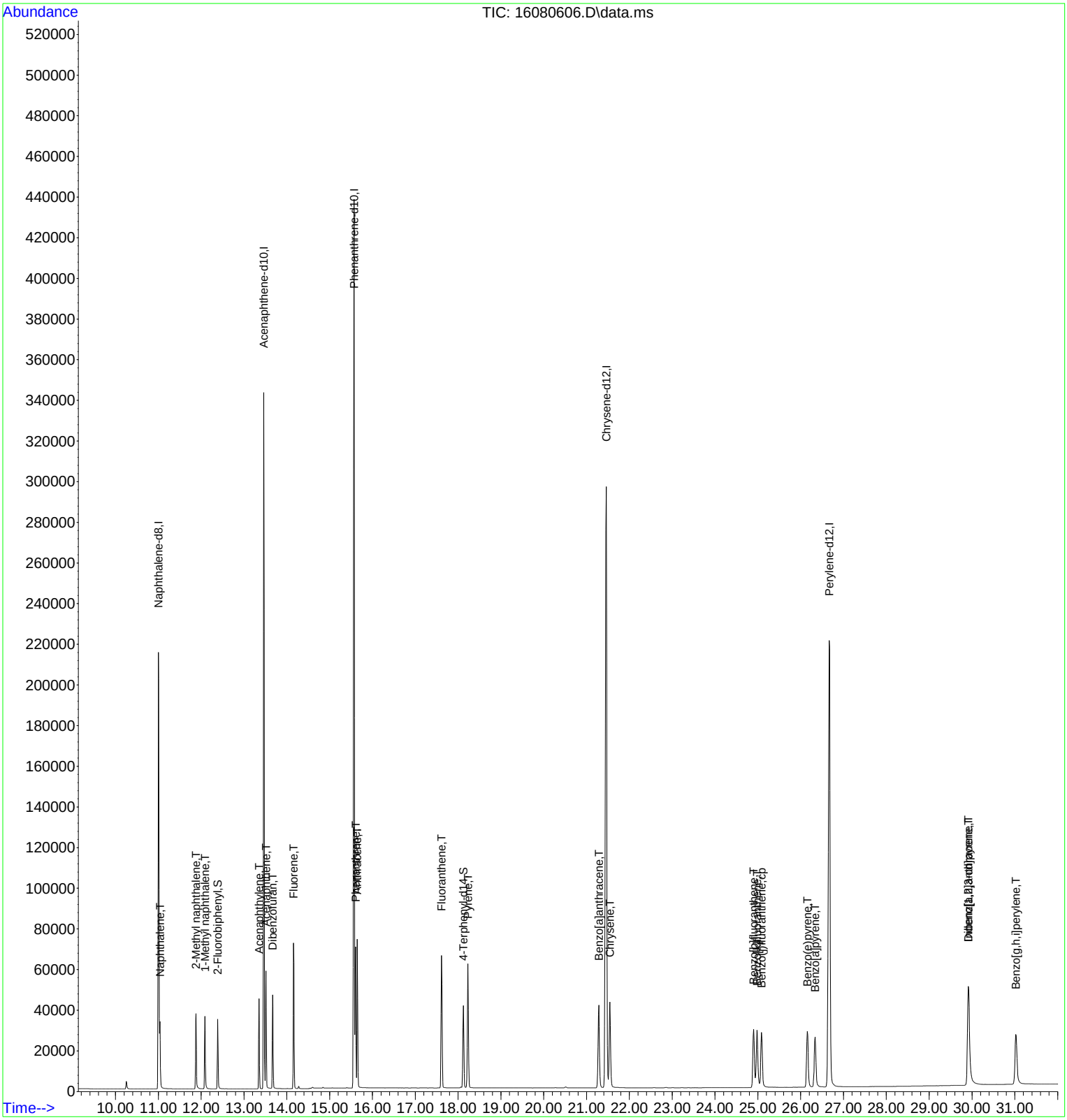
Target Compounds						Qvalue
2) Naphthalene	11.036	128	31957	481.49	ug/kg	100
3) 2-Methyl naphthalene	11.880	142	22525	497.88	ug/kg	97
4) 1-Methyl naphthalene	12.085	142	20452	491.73	ug/kg	97
7) Acenaphthylene	13.348	152	39741	489.08	ug/kg	100
8) Acenaphthene	13.511	153	25750	484.90	ug/kg	98
9) Dibenzofuran	13.667	168	43530	477.58	ug/kg	91
10) Fluorene	14.156	166	37919	481.10	ug/kg	98
12) Phenanthrene	15.606	178	65953	499.45	ug/kg	99
13) Anthracene	15.645	178	65597	495.35	ug/kg	99
14) Fluoranthene	17.612	202	68462	497.17	ug/kg	97
16) Pyrene	18.229	202	69262	503.07	ug/kg	97
18) Benzo[a]anthracene	21.285	228	57325	491.61	ug/kg	99
19) Chrysene	21.545	228	54790	496.44	ug/kg	99
21) Benzo[b]fluoranthene	24.900	252	52298	494.72	ug/kg	100
22) Benzo[k]fluoranthene	24.977	252	46642	529.66	ug/kg	99
23) Benzo(j)fluoranthene	25.083	252	43864	513.38	ug/kg	99
24) Benzo(e)pyrene	26.153	252	51640	490.90	ug/kg	100
25) Benzo[a]pyrene	26.336	252	49258	497.93	ug/kg	99
26) Indeno[1,2,3-cd]pyrene	29.923	276	61440	500.66	ug/kg	98
27) Dibenz[a,h]anthracene	29.913	278	49607	504.13	ug/kg	99
28) Benzo[g,h,i]perylene	31.031	276	53077	487.22	ug/kg	99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160806\
Data File : 16080606.D
Acq On : 6 Aug 2016 4:16 pm
Operator :
Sample : CAL5 (500 ppb)
Misc : CAL
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Aug 08 08:00:11 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160806\
Data File : 16080607.D
Acq On : 6 Aug 2016 4:56 pm
Operator :
Sample : CAL6 (1000 ppb)
Misc : CAL
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Aug 08 08:00:14 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration

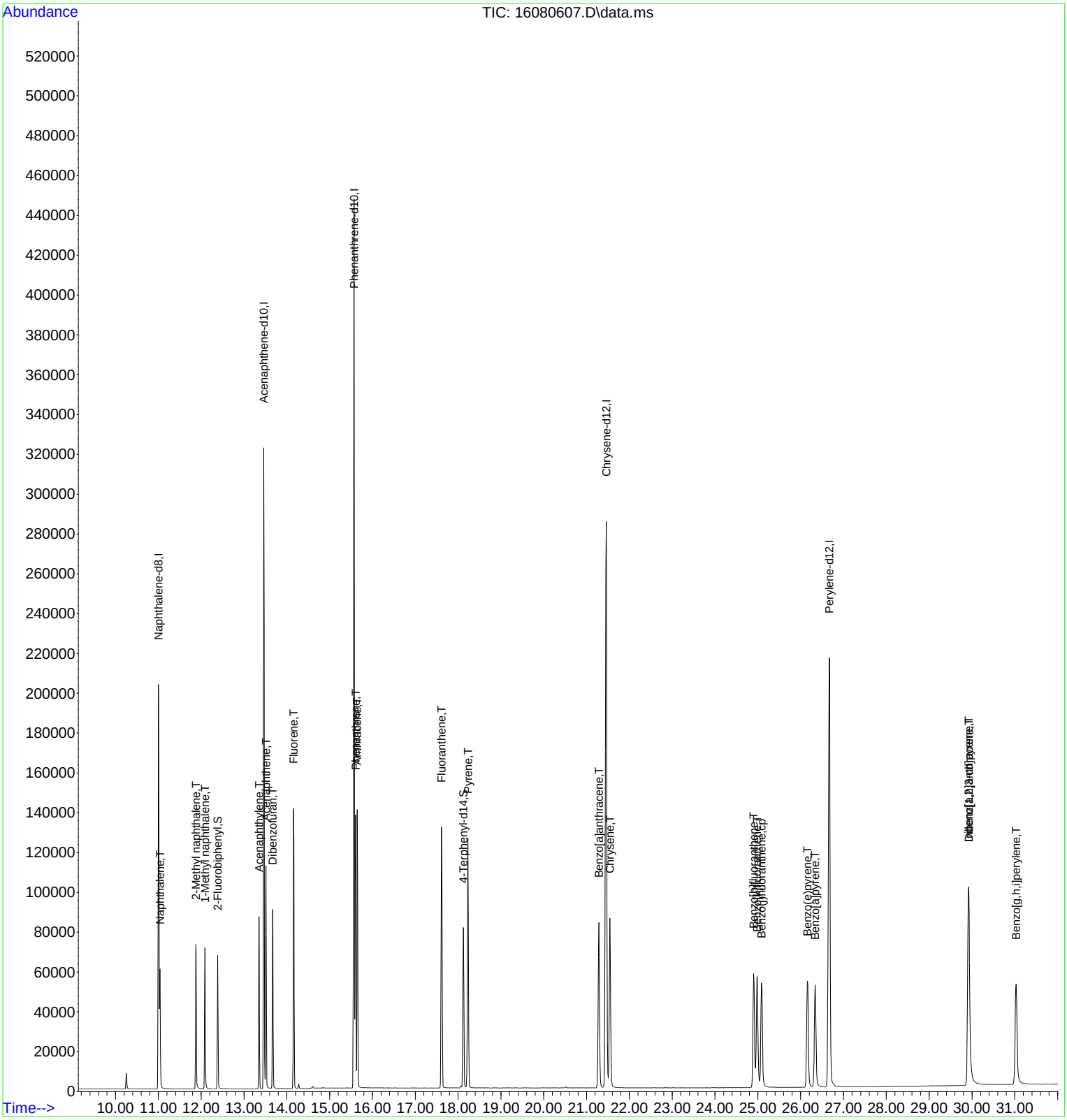
Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	11.000	136	267822	4000.00	ug/kg	101
6) Acenaphthene-d10	13.461	164	166716	4000.00	ug/kg	103
11) Phenanthrene-d10	15.568	188	501021	4000.00	ug/kg	97
17) Chrysene-d12	21.458	240	446752	4000.00	ug/kg	97
20) Perylene-d12	26.674	264	404758	4000.00	ug/kg	96
System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.383	172	55310	928.32	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 23.21%#			
15) 4-Terphenyl-d14	18.123	244	88400	1003.60	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery = 25.09%#			
Target Compounds						Qvalue
2) Naphthalene	11.035	128	61427	961.52	ug/kg	99
3) 2-Methyl naphthalene	11.879	142	42615	978.59	ug/kg	97
4) 1-Methyl naphthalene	12.085	142	38878	971.12	ug/kg	97
7) Acenaphthylene	13.348	152	77127	999.95	ug/kg	100
8) Acenaphthene	13.511	153	49267	977.39	ug/kg	98
9) Dibenzofuran	13.674	168	84471	976.35	ug/kg	83
10) Fluorene	14.156	166	74335	993.59	ug/kg	98
12) Phenanthrene	15.606	178	129759	1003.58	ug/kg	100
13) Anthracene	15.645	178	131450	1005.12	ug/kg	100
14) Fluoranthene	17.612	202	137770	1013.07	ug/kg	97
16) Pyrene	18.229	202	137427	1010.75	ug/kg	99
18) Benzo[a]anthracene	21.285	228	113900	1012.29	ug/kg	100
19) Chrysene	21.545	228	108156	1015.59	ug/kg	99
21) Benzo[b]fluoranthene	24.900	252	107527	1047.78	ug/kg	99
22) Benzo[k]fluoranthene	24.987	252	92227	1078.84	ug/kg	98
23) Benzo(j)fluoranthene	25.083	252	91088	1098.15	ug/kg	99
24) Benzo(e)pyrene	26.163	252	101610	994.98	ug/kg	100
25) Benzo[a]pyrene	26.336	252	98457	1025.22	ug/kg	98
26) Indeno[1,2,3-cd]pyrene	29.932	276	121009	1015.75	ug/kg	92
27) Dibenz[a,h]anthracene	29.913	278	98173	1027.69	ug/kg	98
28) Benzo[g,h,i]perylene	31.031	276	104054	983.90	ug/kg	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160806\
Data File : 16080607.D
Acq On : 6 Aug 2016 4:56 pm
Operator :
Sample : CAL6 (1000 ppb)
Misc : CAL
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Aug 08 08:00:14 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160806\
Data File : 16080608.D
Acq On : 6 Aug 2016 5:36 pm
Operator :
Sample : CAL7 (2000 ppb)
Misc : CAL
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Aug 08 08:00:17 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	11.003	136	264758	4000.00	ug/kg	100
6) Acenaphthene-d10	13.464	164	162191	4000.00	ug/kg	100
11) Phenanthrene-d10	15.568	188	514937	4000.00	ug/kg	100
17) Chrysene-d12	21.458	240	462813	4000.00	ug/kg	100
20) Perylene-d12	26.674	264	420332	4000.00	ug/kg	100

System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.386	172	103225	1752.58	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 43.81%			
15) 4-Terphenyl-d14	18.123	244	178181	1968.20	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery = 49.20%#			

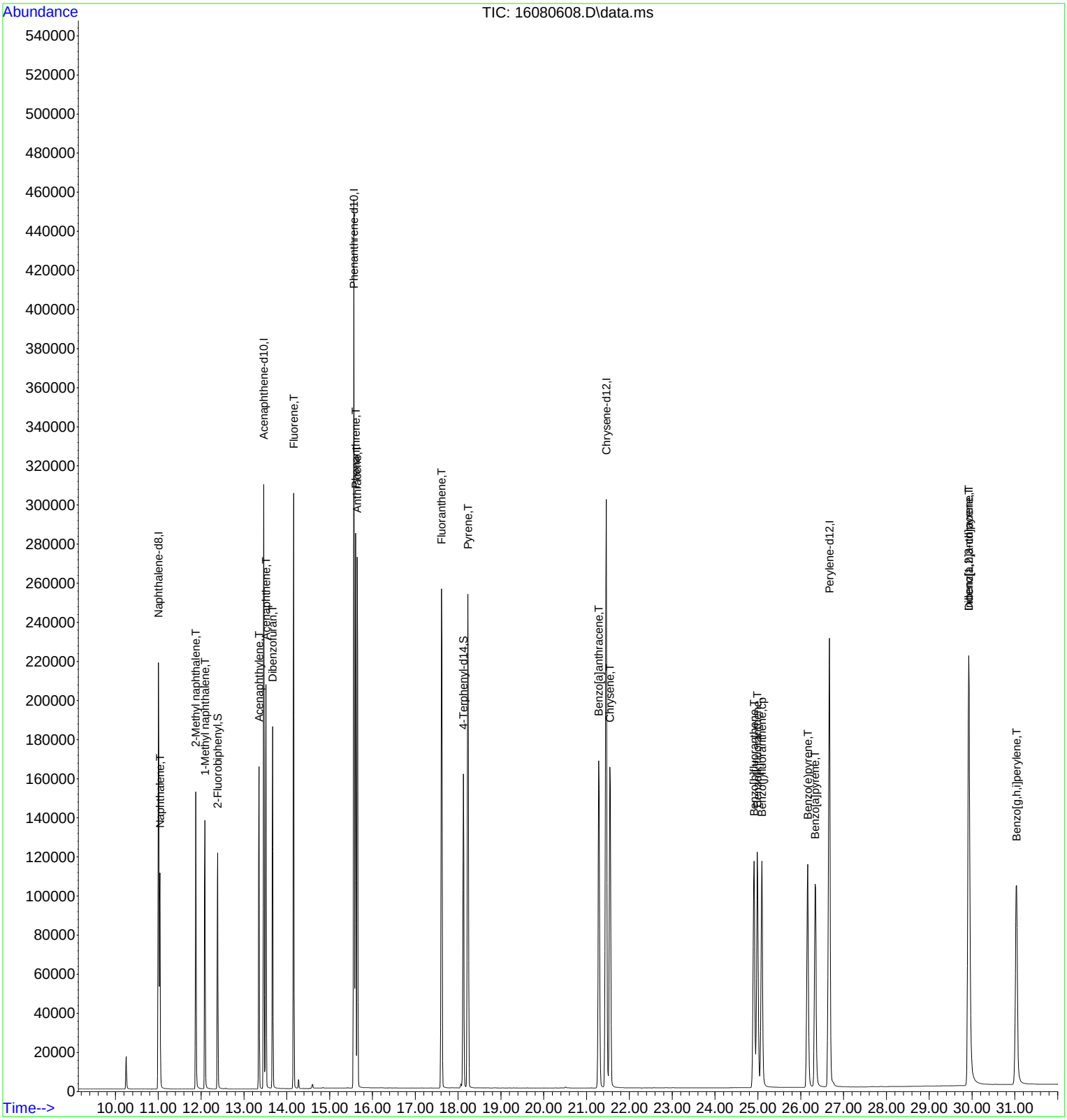
Target Compounds						Qvalue
2) Naphthalene	11.038	128	118524	1876.73	ug/kg	100
3) 2-Methyl naphthalene	11.875	142	81602	1895.55	ug/kg	100
4) 1-Methyl naphthalene	12.088	142	73437	1855.59	ug/kg	100
7) Acenaphthylene	13.350	152	146166	1947.92	ug/kg	100
8) Acenaphthene	13.513	153	92949	1895.42	ug/kg	100
9) Dibenzofuran	13.669	168	161555	1919.41	ug/kg	100
10) Fluorene	14.159	166	147030	2020.08	ug/kg	100
12) Phenanthrene	15.607	178	261552	1994.90	ug/kg	100
13) Anthracene	15.645	178	265308	1973.84	ug/kg	100
14) Fluoranthene	17.612	202	276623	1979.14	ug/kg	100
16) Pyrene	18.229	202	276518	1978.77	ug/kg	100
18) Benzo[a]anthracene	21.285	228	232801	1997.23	ug/kg	100
19) Chrysene	21.545	228	217842	1974.57	ug/kg	100
21) Benzo[b]fluoranthene	24.910	252	217452	2040.42	ug/kg	100
22) Benzo[k]fluoranthene	24.987	252	195921	2206.89	ug/kg	100
23) Benzo(j)fluoranthene	25.093	252	185794	2156.93	ug/kg	100
24) Benzo(e)pyrene	26.163	252	208877	1969.57	ug/kg	100
25) Benzo[a]pyrene	26.346	252	202589	2031.37	ug/kg	100
26) Indeno[1,2,3-cd]pyrene	29.932	276	250927	2028.25	ug/kg	100
27) Dibenz[a,h]anthracene	29.923	278	205669	2073.21	ug/kg	100
28) Benzo[g,h,i]perylene	31.041	276	213396	1943.04	ug/kg	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160806\
Data File : 16080608.D
Acq On : 6 Aug 2016 5:36 pm
Operator :
Sample : CAL7 (2000 ppb)
Misc : CAL
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Aug 08 08:00:17 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160806\
Data File : 16080609.D
Acq On : 6 Aug 2016 6:15 pm
Operator :
Sample : CAL8 (5000 ppb)
Misc : CAL
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Aug 08 08:00:21 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration

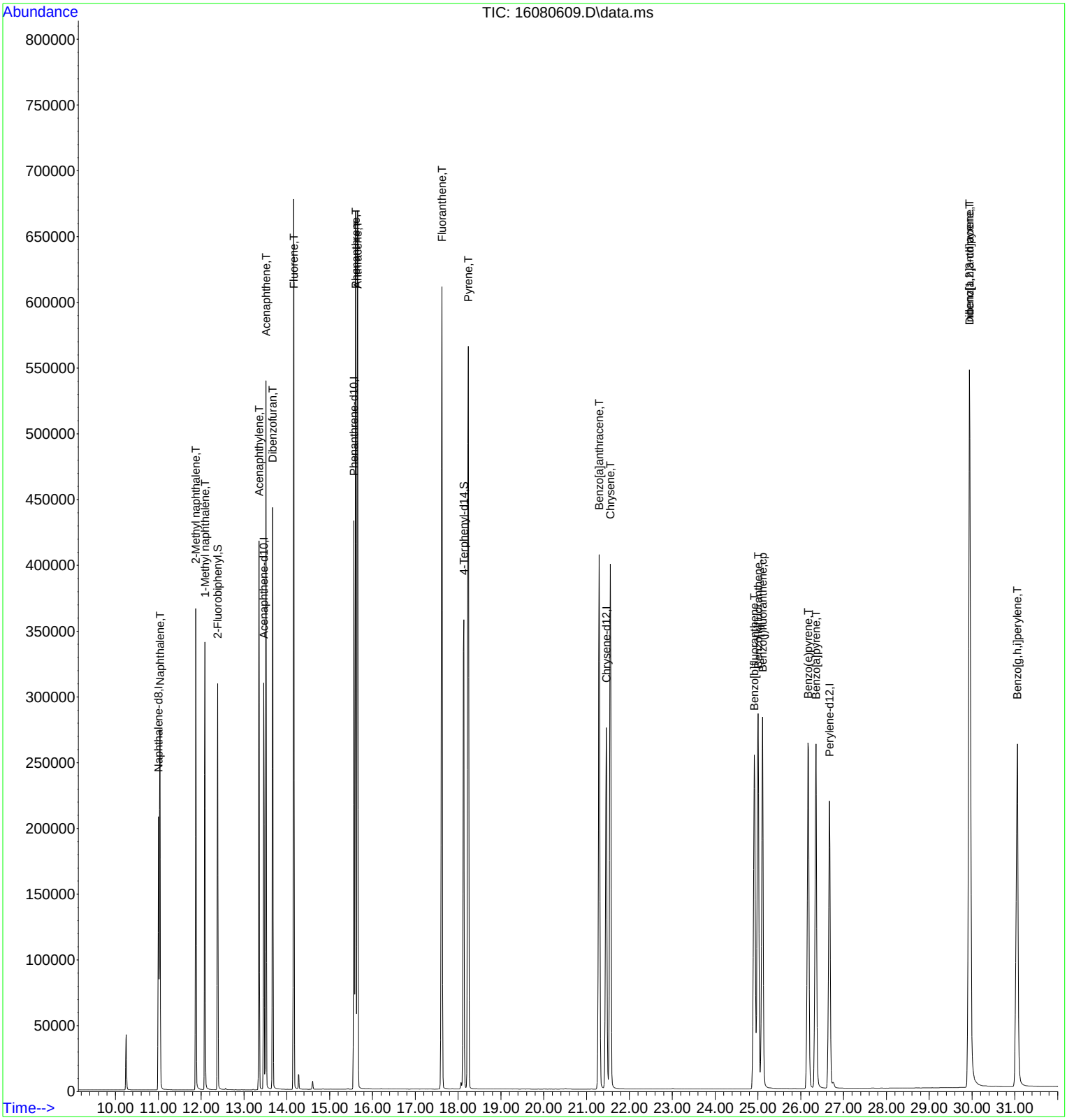
Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	11.002	136	252241	4000.00	ug/kg	95
6) Acenaphthene-d10	13.463	164	159272	4000.00	ug/kg	98
11) Phenanthrene-d10	15.567	188	499657	4000.00	ug/kg	97
17) Chrysene-d12	21.458	240	432494	4000.00	ug/kg	93
20) Perylene-d12	26.673	264	396956	4000.00	ug/kg	94
System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.385	172	246192	4387.33	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 109.68%			
15) 4-Terphenyl-d14	18.132	244	410002	4667.42	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery = 116.69%			
Target Compounds						Qvalue
2) Naphthalene	11.037	128	286734	4765.49	ug/kg	99
3) 2-Methyl naphthalene	11.874	142	197473	4814.77	ug/kg	99
4) 1-Methyl naphthalene	12.087	142	177995	4720.73	ug/kg	99
7) Acenaphthylene	13.349	152	370090	5022.48	ug/kg	99
8) Acenaphthene	13.512	153	237031	4922.13	ug/kg	99
9) Dibenzofuran	13.668	168	400435	4844.69	ug/kg	90
10) Fluorene	14.158	166	361931	5063.80	ug/kg	99
12) Phenanthrene	15.606	178	611969	5001.47	ug/kg	98
13) Anthracene	15.654	178	630528	4834.45	ug/kg	99
14) Fluoranthene	17.621	202	645421	4758.97	ug/kg	97
16) Pyrene	18.238	202	639631	4717.20	ug/kg	100
18) Benzo[a]anthracene	21.294	228	554663	5092.10	ug/kg	99
19) Chrysene	21.554	228	514776	4993.15	ug/kg	99
21) Benzo[b]fluoranthene	24.919	252	529342	5259.47	ug/kg	98
22) Benzo[k]fluoranthene	25.006	252	454699	5423.43	ug/kg	99
23) Benzo(j)fluoranthene	25.112	252	433556	5329.67	ug/kg	99
24) Benzo(e)pyrene	26.182	252	510171	5093.87	ug/kg	99
25) Benzo[a]pyrene	26.355	252	495676	5262.85	ug/kg	97
26) Indeno[1,2,3-cd]pyrene	29.951	276	613990	5255.15	ug/kg	97
27) Dibenz[a,h]anthracene	29.941	278	506923	5410.87	ug/kg	98
28) Benzo[g,h,i]perylene	31.060	276	523877	5050.98	ug/kg	97

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160806\
Data File : 16080609.D
Acq On : 6 Aug 2016 6:15 pm
Operator :
Sample : CAL8 (5000 ppb)
Misc : CAL
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Aug 08 08:00:21 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160806\
Data File : 16080610.D
Acq On : 6 Aug 2016 6:55 pm
Operator :
Sample : SSCV (2500 ppb)
Misc : ICV
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Aug 08 08:00:24 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration

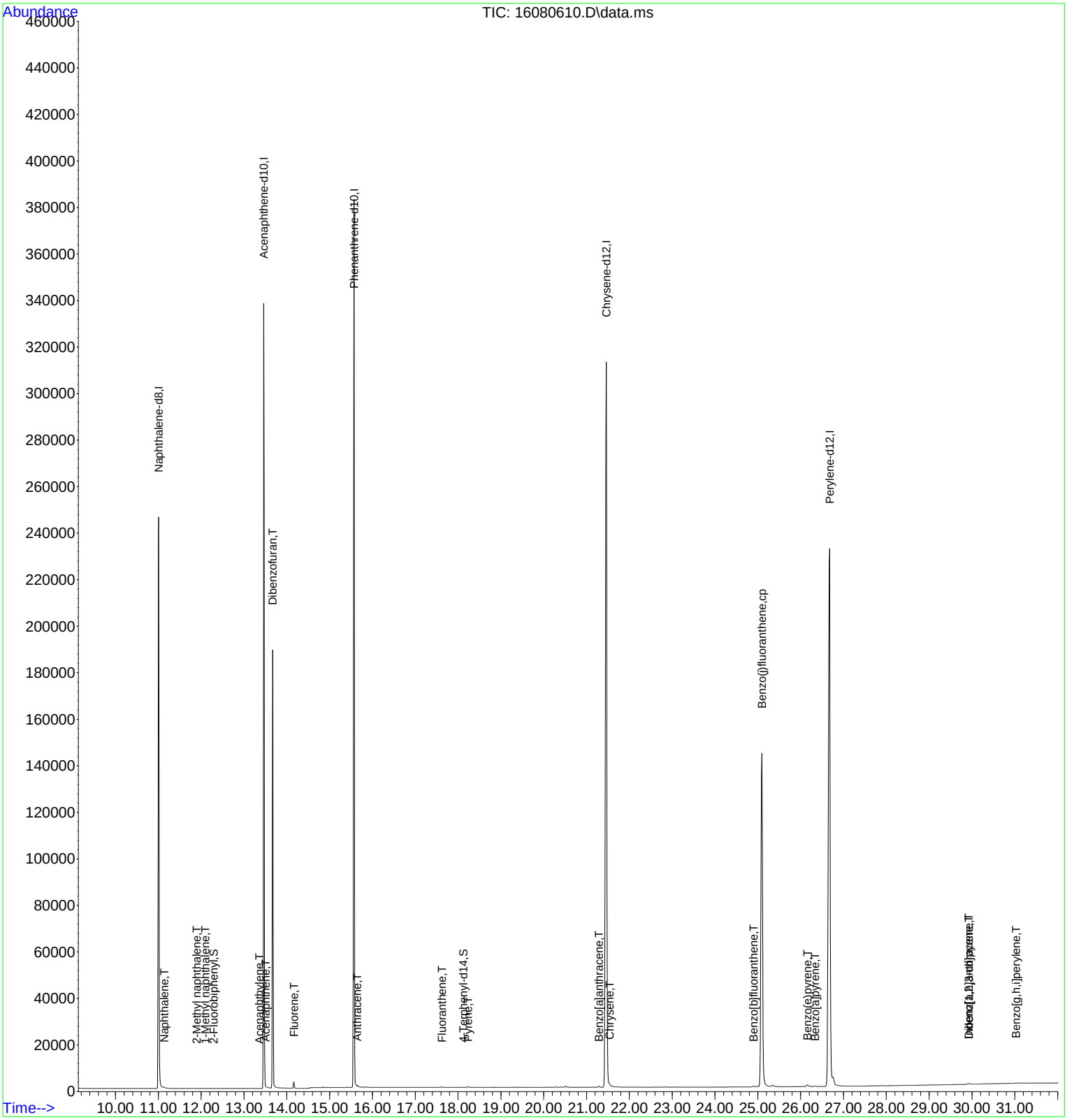
Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	11.008	136	322112	4000.00	ug/kg	122
6) Acenaphthene-d10	13.462	164	171075	4000.00	ug/kg	105
11) Phenanthrene-d10	15.568	188	430799	4000.00	ug/kg	84
17) Chrysene-d12	21.459	240	477806	4000.00	ug/kg	103
20) Perylene-d12	26.674	264	444268	4000.00	ug/kg	106
System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.291	172	18	0.25	ug/kg	-0.09
Spiked Amount 4000.000	Range 40 - 140		Recovery =	0.01%#		
15) 4-Terphenyl-d14	18.123	244	60	0.79	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery =	0.02%#		
Target Compounds						Qvalue
2) Naphthalene	11.143	128	2	0.03	ug/kg	70
3) 2-Methyl naphthalene	11.901	142	30	0.57	ug/kg	79
4) 1-Methyl naphthalene	12.093	142	5	0.10	ug/kg#	41
7) Acenaphthylene	13.348	152	27	0.34	ug/kg	90
8) Acenaphthene	13.511	153	26	0.50	ug/kg	95
9) Dibenzofuran	13.674	168	180734	2035.76	ug/kg	84
10) Fluorene	14.164	166	1574	20.50	ug/kg	98
12) Phenanthrene	15.607	178	232	No Quad Fit		
13) Anthracene	15.646	178	488	4.34	ug/kg	99
14) Fluoranthene	17.622	202	330	2.82	ug/kg	92
16) Pyrene	18.229	202	355	3.04	ug/kg	96
18) Benzo[a]anthracene	21.285	228	636	5.29	ug/kg	99
19) Chrysene	21.546	228	566	4.97	ug/kg	99
21) Benzo[b]fluoranthene	24.901	252	721	6.40	ug/kg	96
22) Benzo[k]fluoranthene	0.000	252	0	N.D.		
23) Benzo(j)fluoranthene	25.093	252	254655	2797.08	ug/kg	100
24) Benzo(e)pyrene	26.154	252	1582	14.11	ug/kg	83
25) Benzo[a]pyrene	26.337	252	536	5.08	ug/kg	89
26) Indeno[1,2,3-cd]pyrene	29.923	276	580	4.44	ug/kg	97
27) Dibenz[a,h]anthracene	29.914	278	357	3.40	ug/kg	91
28) Benzo[g,h,i]perylene	31.032	276	440	3.79	ug/kg	98

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160806\
Data File : 16080610.D
Acq On : 6 Aug 2016 6:55 pm
Operator :
Sample : SSCV (2500 ppb)
Misc : ICV
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Aug 08 08:00:24 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160806\
Data File : 16080611.D
Acq On : 6 Aug 2016 7:35 pm
Operator :
Sample : SSCV (2500 ppb)
Misc : ICV
ALS Vial : 11 Sample Multiplier: 1

Quant Time: Aug 08 08:00:27 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration

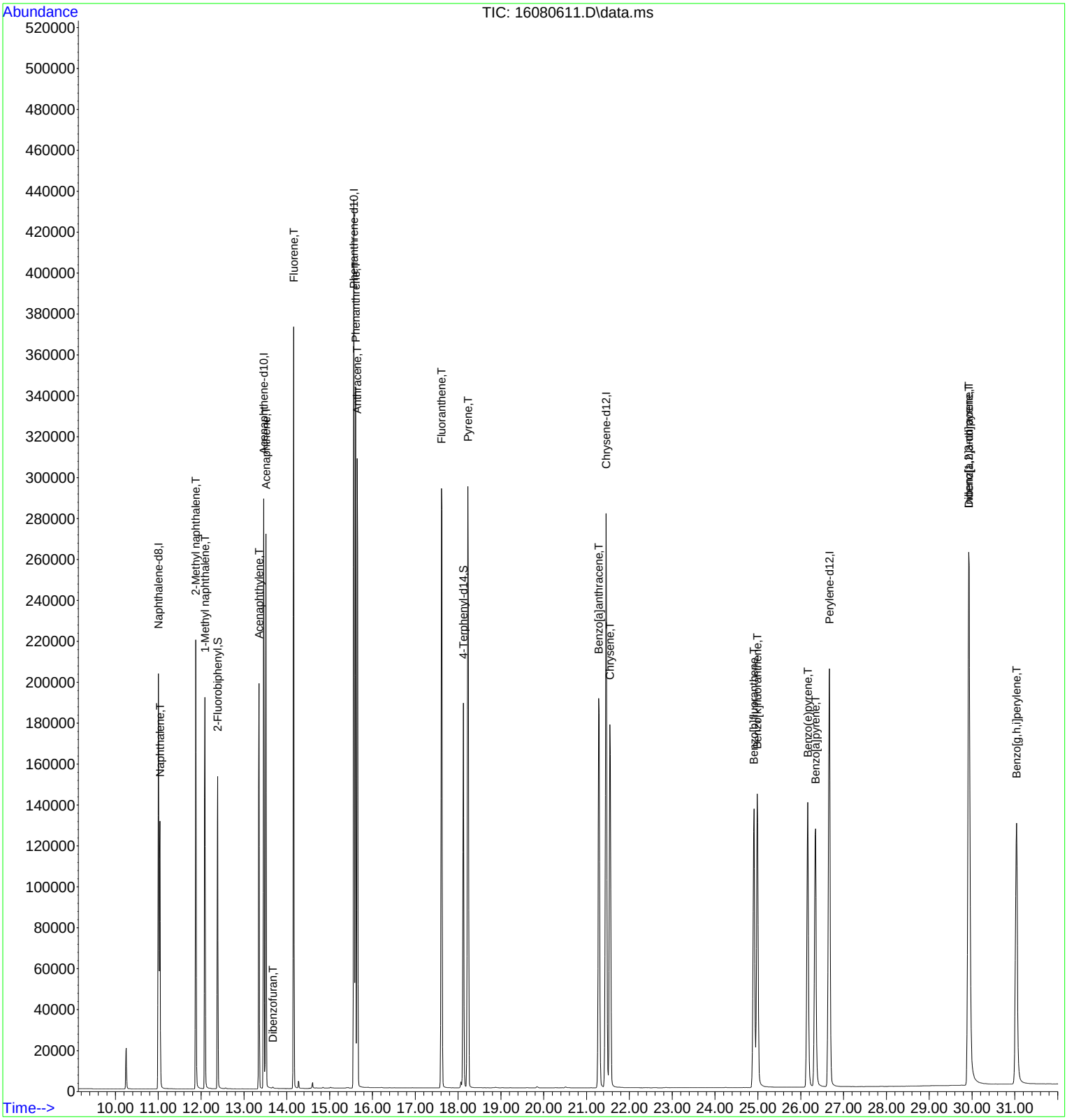
Internal Standards	R.T.	QIon	Response	Conc	Units	%Rec
1) Naphthalene-d8	11.003	136	245742	4000.00	ug/kg	93
6) Acenaphthene-d10	13.464	164	154116	4000.00	ug/kg	95
11) Phenanthrene-d10	15.567	188	484926	4000.00	ug/kg	94
17) Chrysene-d12	21.457	240	430894	4000.00	ug/kg	93
20) Perylene-d12	26.673	264	395276	4000.00	ug/kg	94
System Monitoring Compounds						Dev(Min)
5) 2-Fluorobiphenyl	12.386	172	125883	2302.66	ug/kg	0.00
Spiked Amount 4000.000	Range 40 - 140		Recovery = 57.57%			
15) 4-Terphenyl-d14	18.122	244	202550	2375.85	ug/kg	0.00
Spiked Amount 4000.000	Range 50 - 135		Recovery = 59.40%			
Target Compounds						Qvalue
2) Naphthalene	11.038	128	141492	2413.77	ug/kg	100
3) 2-Methyl naphthalene	11.875	142	115953	2901.92	ug/kg	100
4) 1-Methyl naphthalene	12.088	142	101878	2773.44	ug/kg	99
7) Acenaphthylene	13.350	152	177800	2493.65	ug/kg	100
8) Acenaphthene	13.513	153	120206	2579.68	ug/kg	100
9) Dibenzofuran	13.676	168	536	6.70	ug/kg	92
10) Fluorene	14.159	166	183741	2656.74	ug/kg	99
12) Phenanthrene	15.606	178	312738	2551.30	ug/kg	100
13) Anthracene	15.644	178	302294	2388.19	ug/kg	100
14) Fluoranthene	17.611	202	330048	2507.52	ug/kg	99
16) Pyrene	18.228	202	328202	2493.97	ug/kg	98
18) Benzo[a]anthracene	21.284	228	267528	2465.17	ug/kg	100
19) Chrysene	21.544	228	233562	2273.88	ug/kg	100
21) Benzo[b]fluoranthene	24.909	252	256365	2558.03	ug/kg	100
22) Benzo[k]fluoranthene	24.986	252	240456	2880.23	ug/kg	99
23) Benzo(j)fluoranthene	0.000	252	0	N.D.		
24) Benzo(e)pyrene	26.162	252	253169	2538.54	ug/kg	100
25) Benzo[a]pyrene	26.345	252	244635	2608.46	ug/kg	99
26) Indeno[1,2,3-cd]pyrene	29.931	276	301276	2589.59	ug/kg	97
27) Dibenz[a,h]anthracene	29.922	278	247697	2655.14	ug/kg	98
28) Benzo[g,h,i]perylene	31.040	276	256010	2478.82	ug/kg	99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (Not Reviewed)

Data Path : C:\msdchem\1\DATA\160806\
Data File : 16080611.D
Acq On : 6 Aug 2016 7:35 pm
Operator :
Sample : SSCV (2500 ppb)
Misc : ICV
ALS Vial : 11 Sample Multiplier: 1

Quant Time: Aug 08 08:00:27 2016
Quant Method : C:\msdchem\1\METHODS\PAH160806.M
Quant Title : CLP BNA Calibration - Large Volume Injection
QLast Update : Sun Aug 07 12:43:55 2016
Response via : Initial Calibration



ICP-MS3
For

DHL Work Order
1607337

ICP-MS3_160809B
For

DHL Work Order
1607337

Lab Data Review Check List
EPA Method 6020 / 6020A / 200.8 - Trace Metals by ICP-MS

PROJECT AND BATCH NUMBERS ARE LISTED ON THE RUN LOG	Run ID: ICP-MS3_160809B SOP: MET-ICPMS-01			
Review Item	**Yes**	**No**	**N/A**	**2nd Level Review**
Data Folder Contents 1. Is the Prep Batch Report included? ***Check the Prep Start/End Dates, Sample Amounts, Bottle #s***	X			
2. Are the reagents and spikes listed on the Prep Batch Report current with a valid expiration date? ***All standard/QC sample preparations shall be documented in LIMS***	X			x
3. Is the Run Log and instrument sequence included? ***Check the Test Code, Sample Type, Batch ID, and Analysis Date/Time***	X			

Daily Demonstration of Performance

QC items that do not meet method/SOP/project requirements will be described on the run log. All variances that impact data quality will be described in the Variance/Comment Section on page 2.

Review Item	Frequency	Limits	Pass	Fail (List Batch/Sample) **See Run Log**		2nd Level Review
Tune	Before ICAL	RSD ≤ 5% / Peak Width@10% <0.9amu	X			
P/A Factor	Before ICAL	Increasing trend	X			x
Initial Calibration Curve (ICAL) (Blank + 4 Standards)	Prior to samples and when ICV fails	R ≥ 0.995 (DoD) R ≥ 0.998 (6020A)	X			
Review Item	**Frequency**	**Limits**	**Pass**	**Fail**	**N/A**	**Review**
ICSA (N/A for Method 200.8+U)	After calibration & every 12 hours	< RL (except Mn & Zn)	X			x
ICSAB (N/A for Method 200.8+U)	After calibration & every 12 hours	80-120% (correct for ICSA result)	X			
Note: LCVLs and ICSA/ICSAB are N/A for Method 200.8 or project-specific exceptions						
ICV (Second Source Verification)	After ICAL	90-110%	X			
ICB	After calibration	< MDL	X			
CCV	Every 10 samples	90-110%	X			
CCB	Every 10 samples	< MDL (ALL + DoD)	X			
Internal Standards	Every sample and QC sample	> 70% (6020A) 60-125% (200.8) 30-120% (DoD)	X			
LCVL (6020A test code)	After ICAL, every 10 samples and end of run	70-130%			X	
LCVL (All metals test codes except 200.8/6020A)	After ICAL and end of run	70-130%	X			x
Method Blank (MB)	Every Batch	< MDL / <½ RL (DoD) or <1/10 the sample/reg limit	X			
Filter/TCLP/SPLP Blank	Filter-Dissolved only TCLP / SPLP	< MDL / <½ RL (DoD) or <1/10 the sample/reg limit			X	
Lab Control Sample (LCS)	Every Batch	80-120%	X			
Lab Control Sample Dup (LCSD)	Every Batch	80-120%	X			
LCSD - RPD	Every LCS/LCSD	15 (H2O) / 20 (Soil)	X			
Matrix Spike/ Matrix Spike Duplicate (MS/MSD)	Every Batch	80-120%	X			
MSD - RPD	Every MS/MSD	15 (H2O) / 20 (Soil)	X			
Dilution Test (SD) - RPD	Every Batch	10		x		
Post Digestion Spike (PDS)	Every Batch	75-125 / 80-120 (6020A)	X			

Lab Data Review Check List
EPA Method 6020 / 6020A / 200.8 - Trace Metals by ICP-MS

Review Item	Criteria	Yes	No	N/A	2nd Level Review
Sample Analysis 1. Are all sample hold times met?	6 months	X			x
2. Are all samples with concentrations > the highest standard used for calibration diluted and reanalyzed?	All results > high point of ICAL must be diluted	x			
3. Are ALL reported analytes and reported results > MDL highlighted by the analyst?		X	**Confirm with analyst if LIMS result does not match Labcore**		

VARIANCE REPORT

QC items that do not meet method/SOP/project requirements will be described on the run log. All variances that impact data quality will be described in this section.

NON-CONFORMANCES / VARIANCE	Criteria	Yes	No	N/A	2nd Level
1. Are all non-conformances and corrective actions included and noted?	All deviations from the method and SOP that affect data quality	x			x
2. Does the variance require approval by the Technical Director/General Manager/QA Manager?		x			

TECHNICAL DIRECTOR / QA MANAGER APPROVAL
SIGNATURE AND DATE STAMP:

Description and Corrective Actions of QC items that do not meet method/SOP/project requirements:

****INCLUDE VARIANCE ITEM / REASON / CORRECTIVE ACTION / IMPACT ON DATA****

VARIANCE ITEM	REASON	CORRECTIVE ACTION
__ CCV out of control (± 10%)	__ Carryover from previous run	__ Reanalyze QC to confirm
__ CCB out of control (> MDL / >½ RL)	__ Cross contamination	__ Recalibrate
__ MB out of control (> RL / >½ RL)	__ Lab Artifact	__ Reprep/Reanalyze sample
__ LCS __ LCSD out of control (± 20%)	__ Prep Spike error (describe)	__ Reprep/Reanalyze Batch
__ MS __ MSD out of control (± 20%)	__ Matrix Effect	__ Reanalyze Batch/Sample/QC
__ RPD out of control for MS/MSD (15/25)	__ High Levels of Target Metals	__ Verify reagents are clean
__ Internal Standard(s) out of control (see Method)	__ Insufficient sample for QC	__ Reanalyze sample to confirm
__ No MS/MSD prepared - LCS/LCSD used instead	__ Digestion/Prep Error	__ Sample results ND w/ dilution
__ Missing QC (other than MS/MSD)	__ Analytical Error	__ Client notified and approved
__ QC sample(s) was mis-spiked	__ Client Request	__ Flag Data/ Case Narative
__ ICSA/ICSAB missing or out of control (± 20%)		__ Accept data
__ LCVL out of control (± 30%)		__ Cal Std high and sample ND
__ Other (describe below)	__ Other (describe below)	__ Other (describe below)

General Comments and Impact on Data:

Analyst: Cara Van Dyke Date of Completion: 08/10/2016

Second-Level Review: Janice Whitt Date Stamp: 8/10/2016

REVIEWED BY
By Janice Whitt at 2:34:49 PM, 8/10/2016

DHL Analytical, Inc.

Run ID: **ICP-MS3_160809B** **Run No.:** 87530

Analytical Run Date: 8/9/2016 **InstrumentID:** ICP-MS3

Analyst: Cassie Van Dyke

SampID	DF	TestCode	SampType	Batch ID	Analysis Date/Time	Q	Comments
BLANK STD 1	1	ICPMS_TWDOD	CAL	R87530	8/9/2016 12:19:00 PM		
L2-160809	1	ICPMS_TWDOD	CAL	R87530	8/9/2016 12:25:00 PM		
L-160809	1	ICPMS_TWDOD	CAL	R87530	8/9/2016 12:31:00 PM		
10X-160809	1	ICPMS_TWDOD	CAL	R87530	8/9/2016 12:37:00 PM		
5X-160809	1	ICPMS_TWDOD	CAL	R87530	8/9/2016 12:43:00 PM		
2X-160809	1	ICPMS_TWDOD	CAL	R87530	8/9/2016 12:49:00 PM		
H-160809	1	ICPMS_TWDOD	CAL	R87530	8/9/2016 12:55:00 PM		
H2-160809	1	ICPMS_TWDOD	CAL	R87530	8/9/2016 1:01:00 PM		
ICSA-160809	1	ICPMS_TWDOD	ICSA	R87530	8/9/2016 1:18:00 PM		
ICSAB-160809	1	ICPMS_TWDOD	ICSB	R87530	8/9/2016 1:24:00 PM		
ICV1-160809	1	ICPMS_TWDOD	ICV	R87530	8/9/2016 1:42:00 PM		
ICB1-160809	1	ICPMS_TWDOD	ICB	R87530	8/9/2016 1:48:00 PM		
ILCVL-160809	1	ICPMS_TWDOD	LCVL	R87530	8/9/2016 1:54:00 PM		
CCV5-160809	1	ICPMS_TWDOD	CCV	R87530	8/9/2016 10:34:00 PM		
LCVL5-160809	1	ICPMS_TWDOD	LCVL	R87530	8/9/2016 10:45:00 PM		
CCB5-160809	1	ICPMS_TWDOD	CCB	R87530	8/9/2016 10:51:00 PM		
MB-76687	1	ICPMS_TWDOD	MBLK	76687	8/9/2016 10:57:00 PM		
LCS-76687	1	ICPMS_TWDOD	LCS	76687	8/9/2016 11:03:00 PM		
LCSD-76687	1	ICPMS_TWDOD	LCSD	76687	8/9/2016 11:09:00 PM		
1607337-26A	1	ICPMS_TWDOD	SAMP	76687	8/9/2016 11:21:00 PM		
1607337-26A SD	5	ICPMS_TWDOD	SD	76687	8/9/2016 11:27:00 PM		DNR. Sample was misprepared at bench and sample was not detected. As per DOD QSM 5.0, criteria doesn't apply for samples with concentration <50x the LOQ, therefore no effect to data. PDS passes.
1607219-13A	1	ICPMS_TWDOD	SAMP	76687	8/9/2016 11:33:00 PM		
1607219-26A	1	ICPMS_TWDOD	SAMP	76687	8/9/2016 11:39:00 PM		
1607239-16A	1	ICPMS_TWDOD	SAMP	766a87	8/9/2016 11:45:00 PM		
1607239-32A	1	ICPMS_TWDOD	SAMP	76687	8/9/2016 11:51:00 PM		
1607256-13A	1	ICPMS_TWDOD	SAMP	76687	8/10/2016 12:03:00 AM		
1607256-26A	1	ICPMS_TWDOD	SAMP	76687	8/10/2016 12:09:00 AM		

Std ID	Std Name	Type	Exp. Date
MET-CCV-160804	ICPMS CCV 200/5000 PPB		02/02/2017
MET-H2CAL-1608	ICPMS High Cal2 2000ppb std 8		02/02/2017
MET-HCAL-16080	ICPMS High Cal 500ppb/10ppm s		02/02/2017
MET-ICV-160804	ICPMS ICV 100 ppb		02/02/2017
MET-IS-160511	INTERNAL STANDARD 1 PPM		11/09/2016
MET-L2CAL-16080	ICPMS Low Cal2 1/20ppb std 2		02/02/2017
MET-LCAL-160804	ICPMS Low Cal 10/200ppb std 3		02/02/2017
MET-LCAL10X-16	ICPMS Low Cal 10/200ppb std 4		02/02/2017
MET-LCAL5X-160	ICPMS Low Cal 10/200ppb std 5		02/02/2017
MET-LCVLSPIKE-	LCVL METALS SPIKE (100/500		11/07/2016
MET-MCAL-16080	ICPMS Mid Cal 250/5000ppb std		02/02/2017
MET-PA-160421	ICPMS PA FACTOR SOLUTION		10/20/2016
MET-PDS-160701-	10 PPM Ag+Sb PDS		01/01/2017
MET-PDS-160701-	10 PPM CUSTOM PDS SOLUTI		01/01/2017
MET-PDS-160701-	250 PPM Naturals+Al+Fe PDS		07/01/2017

DHL Analytical, Inc.

Run ID: ICP-MS3_160809B **Run No.:** 87530

1607256-27A	1	ICPMS_TWDOD	SAMP	76687	8/10/2016 12:15:00 AM		
1607265-13A	1	ICPMS_TWDOD	SAMP	76687	8/10/2016 12:21:00 AM		
1607265-26A	1	ICPMS_TWDOD	SAMP	76687	8/10/2016 12:28:00 AM		
1607337-26A PDS	1	ICPMS_TWDOD	PDS	76687	8/10/2016 12:34:00 AM		
CCV6-160809	1	ICPMS_TWDOD	CCV	R87530	8/10/2016 12:40:00 AM		
LCVL6-160809	1	ICPMS_TWDOD	LCVL	R87530	8/10/2016 12:52:00 AM		
CCB6-160809	1	ICPMS_TWDOD	CCB	R87530	8/10/2016 12:58:00 AM		
1607294-13A	1	ICPMS_TWDOD	SAMP	76687	8/10/2016 1:04:00 AM		
1607294-24A	1	ICPMS_TWDOD	SAMP	76687	8/10/2016 1:10:00 AM		
1607294-37A	1	ICPMS_TWDOD	SAMP	76687	8/10/2016 1:16:00 AM		
1607294-50A	1	ICPMS_TWDOD	SAMP	76687	8/10/2016 1:22:00 AM		
ICSA-160809	1	ICPMS_TWDOD	ICSA	R87530	8/10/2016 1:28:00 AM		
ICSAB-160809	1	ICPMS_TWDOD	ICSB	R87530	8/10/2016 1:34:00 AM		
1607294-63A	1	ICPMS_TWDOD	SAMP	76687	8/10/2016 1:52:00 AM		
1607294-76A	1	ICPMS_TWDOD	SAMP	76687	8/10/2016 2:04:00 AM		
1607314-07A	1	ICPMS_TWDOD	SAMP	76687	8/10/2016 2:10:00 AM		
1607317-13A	1	ICPMS_TWDOD	SAMP	76687	8/10/2016 2:16:00 AM		
1607317-26A	1	ICPMS_TWDOD	SAMP	76687	8/10/2016 2:22:00 AM		
1607337-13A	1	ICPMS_TWDOD	SAMP	76687	8/10/2016 2:28:00 AM		
CCV7-160809	1	ICPMS_TWDOD	CCV	R87530	8/10/2016 2:34:00 AM		
LCVL7-160809	1	ICPMS_TWDOD	LCVL	R87530	8/10/2016 2:46:00 AM		
CCB7-160809	1	ICPMS_TWDOD	CCB	R87530	8/10/2016 2:52:00 AM		

Std ID	Std Name	Type	Exp. Date
MET-CCV-160804	ICPMS CCV 200/5000 PPB		02/02/2017
MET-H2CAL-1608	ICPMS High Cal2 2000ppb std 8		02/02/2017
MET-HCAL-16080	ICPMS High Cal 500ppb/10ppm s		02/02/2017
MET-ICV-160804	ICPMS ICV 100 ppb		02/02/2017
MET-IS-160511	INTERNAL STANDARD 1 PPM		11/09/2016
MET-L2CAL-16080	ICPMS Low Cal2 1/20ppb std 2		02/02/2017
MET-LCAL-160804	ICPMS Low Cal 10/200ppb std 3		02/02/2017
MET-LCAL10X-16	ICPMS Low Cal 10/200ppb std 4		02/02/2017
MET-LCAL5X-160	ICPMS Low Cal 10/200ppb std 5		02/02/2017
MET-LCVLSPIKE-	LCVL METALS SPIKE (100/500		11/07/2016
MET-MCAL-16080	ICPMS Mid Cal 250/5000ppb std		02/02/2017
MET-PA-160421	ICPMS PA FACTOR SOLUTION		10/20/2016
MET-PDS-160701-	10 PPM Ag+Sb PDS		01/01/2017
MET-PDS-160701-	10 PPM CUSTOM PDS SOLUTI		01/01/2017
MET-PDS-160701-	250 PPM Naturals+Al+Fe PDS		07/01/2017

	Method	Type	Vial	Data File	Sample	Comment	Dil/Lvl	ISTD Conc	Action on Failure	Skip	Result
1		Keyword		CALBEG	Start of CALIB						
2	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1101		BLANK	CAL ICPMS_TW	1.000				
3	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1102		BLANK	CAL ICPMS_TW	1.000				
4	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1103		BLANK	CAL ICPMS_TW	1.000				
5	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1104		BLANK	CAL ICPMS_TW	1.000				
6	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		BLANK	CAL ICPMS_TW	1.000				
7	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalBlk	2101		BLANK STD 1	CAL ICPMS_TW	Level 1				
8	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalStd	2102		L2-160809	CAL ICPMS_TW	Level 2				
9	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalStd	2103		L-160809	CAL ICPMS_TW	Level 3				
10	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalStd	2104		10X-160809	CAL ICPMS_TW	Level 4				
11	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalStd	2105		5X-160809	CAL ICPMS_TW	Level 5				
12	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalStd	2106		2X-160809	CAL ICPMS_TW	Level 6				
13	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalStd	2107		H-160809	CAL ICPMS_TW	Level 7				
14	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalStd	2108		H2-160809	CAL ICPMS_TW	Level 8				
15	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1104		BLANK	CAL ICPMS_TW	1.000				
16	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		BLANK	CAL ICPMS_TW	1.000				
17		Keyword		CALEND	End of CALIB						
18		Keyword		ICSBEG	Start of ICS						
19	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	ICS-A	2109		ICSA-160809	ICSAICPMS_TW	1.000				
20	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	ICS-AB	2110		ICSAB-160809	ICSBICPMS_TW	1.000				
21	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1103		RINSE	CAL ICPMS_TW	1.000				
22	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1104		RINSE	CAL ICPMS_TW	1.000				
23		Keyword		ICSEND	End of ICS						
24		Keyword		SMPLBEG	Start of SMPL						
25	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	ICV	2111		ICV1-160809	ICV ICPMS_TW	1.000				

	Method	Type	Vial	Data File	Sample	Comment	Dil/Lvl	ISTD Conc	Action on Failure	Skip	Result
26	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	ICB	1104		ICB1-160809	ICB ICPMS_TW	1.000				
27	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCVL5	2112		ILCVL-160809	LCVLICPMS_TW	1.000				
28	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	PB	2201		MB-76663	MBLKICPMS_TSDOD1	5.000				
29	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCS	2202		LCS-76663	LCS ICPMS_TSDOD1	5.000				
30	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCS	2203		LCSD-76663	LCSDICPMS_TSDOD1	5.000				
31	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1101		RINSE	CCB ICPMS_TW	1.000				
32	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	AllRef	2204		1607256-28A	SAMPICPMS_TSDOD1	5.000				
33	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	DT	2205		1607256-28A SD	SD ICPMS_TSDOD1	25.00				
34	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2206		1607256-31A	SAMPICPMS_TSDOD1	5.000	Level 1			
35	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2207		1607256-32A	SAMPICPMS_TSDOD1	5.000	Level 1			
36	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2208		1607256-33A	SAMPICPMS_TSDOD1	5.000	Level 1			
37	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2209		1607256-34A	SAMPICPMS_TSDOD1	5.000				
38	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2210		1607256-35A	SAMPICPMS_TSDOD1	5.000				
39	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2211		1607256-36A	SAMPICPMS_TSDOD1	5.000				
40	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2212		1607256-37A	SAMPICPMS_TSDOD1	5.000				
41	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2301		1607256-38A	SAMPICPMS_TSDOD1	5.000				
42	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2302		1607256-39A	SAMPICPMS_TSDOD1	5.000				
43	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	PDS	2303		1607256-28A PDS	PDS ICPMS_TSDOD1	5.000				
44	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	MS_S	2304		1607256-28A MS	MS ICPMS_TSDOD1	5.000				
45	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	MS_S	2305		1607256-28A MSD	MSD ICPMS_TSDOD1	5.000				
46	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	1307		CCV1-160809	CCV ICPMS_TW	1.000				
47	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1104		CCB1-160809	CCB ICPMS_TW	1.000				
48	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	1307		CCV1-160809	CCV ICPMS_TW	1.000				

	Method	Type	Vial	Data File	Sample	Comment	Dil/Lvl	ISTD Conc	Action on Failure	Skip	Result
49	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCVL5	2512		LCVL1-160809	LCVLICPMS_TW	1.000				
50	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		CCB1-160809	CCB ICPMS_TW	1.000				
51	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2306		1607256-40A	SAMPICPMS_TSDOD1	5.000				
52	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2307		1607256-41A	SAMPICPMS_TSDOD1	5.000				
53	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2308		1607256-42A	SAMPICPMS_TSDOD1	5.000				
54	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2309		1607265-01A	SAMPICPMS_TSDOD1	50.00				
55	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2310		1607265-02A	SAMPICPMS_TSDOD1	5.000				
56	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1101		RINSE	CCB ICPMS_TW	1.000				
57	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2311		1607265-03A	SAMPICPMS_TSDOD1	5.000				
58	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2312		1607265-04A	SAMPICPMS_TSDOD1	5.000				
59	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2401		1607265-05A	SAMPICPMS_TSDOD1	5.000				
60	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2402		1607265-06A	SAMPICPMS_TSDOD1	5.000				
61	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2403		1607265-07A	SAMPICPMS_TSDOD1	5.000				
62	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	1307		CCV2-160809	CCV ICPMS_TW	1.000				
63	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1104		CCB2-160809	CCB ICPMS_TW	1.000				
64	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCVL5	2112		LCVL2-160809	LCVLICPMS_TW	1.000				
65	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		CCB2-160809	CCB ICPMS_TW	1.000				
66	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2501		1606256-18A	SAMPICPMS_TSDOD1	5.000				
67	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2502		1607256-19A	SAMPICPMS_TSDOD1	5.000				
68	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2503		1607256-20A	SAMPICPMS_TSDOD1	5.000				
69	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2504		1607256-21A	SAMPICPMS_TSDOD1	5.000				
70	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2505		1607256-22A	SAMPICPMS_TSDOD1	5.000				
71	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1101		RINSE	CCB ICPMS_TW	1.000				

	Method	Type	Vial	Data File	Sample	Comment	Dil/Lvl	ISTD Conc	Action on Failure	Skip	Result
72	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2506		1607256-23A	SAMPICPMS_TSDOD1	5.000				
73	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2507		1607256-24A	SAMPICPMS_TSDOD1	5.000				
74	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2508		1607256-25A	SAMPICPMS_TSDOD1	5.000				
75	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2509		1607256-29A	SAMPICPMS_TSDOD1	5.000				
76	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2510		1607256-30A	SAMPICPMS_TSDOD1	5.000				
77	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	1307		CCV3-160809	CCV ICPMS_TW	1.000				
78	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		CCB3-160809	CCB ICPMS_TW	1.000				
79	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCVL5	2512		LCVL3-160809	LCVLICPMS_TW	1.000				
80	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		CCB3-160809	CCB ICPMS_TW	1.000				
81	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	PB	3101		MB-76670	MBLKICPMS_TSDOD1	5.000				
82	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCS	3102		LCS-76670	LCS ICPMS_TSDOD1	5.000				
83	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCS	3103		LCSD-76670	LCSDICPMS_TSDOD1	5.000				
84	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1101		RINSE	CCB ICPMS_TW	1.000				
85	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	AllRef	3104		1607294-09A	SAMPICPMS_TSDOD1	5.000				
86	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	DT	3105		1607294-09A SD	SD ICPMS_TSDOD1	25.00				
87	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3106		1607294-04A	SAMPICPMS_TSDOD1	5.000				
88	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3107		1607294-05A	SAMPICPMS_TSDOD1	5.000				
89	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3108		1607294-06A	SAMPICPMS_TSDOD1	5.000				
90	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3109		1607294-07A	SAMPICPMS_TSDOD1	5.000				
91	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3110		1607294-08A	SAMPICPMS_TSDOD1	5.000				
92	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3111		1607294-10A	SAMPICPMS_TSDOD1	5.000				
93	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3112		1607294-11A	SAMPICPMS_TSDOD1	5.000				
94	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3201		1607294-12A	SAMPICPMS_TSDOD1	5.000				

	Method	Type	Vial	Data File	Sample	Comment	Dil/Lvl	ISTD Conc	Action on Failure	Skip	Result
95	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3202		1607294-14A	SAMPICPMS_TSDOD1	5.000				
96	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	PDS	3203		1607294-09A PDS	PDS ICPMS_TSDOD1	5.000				
97	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	MS_S	3204		1607294-09A MS	MS_ICPMS_TSDOD1	5.000				
98	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	MS_S	3205		1607294-09A MSD	MSD ICPMS_TSDOD1	5.000				
99	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	1307		CCV4-160809	CCV ICPMS_TW	1.000				
100	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1104		CCB4-160809	CCB ICPMS_TW	1.000				
101	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCVL5	2112		LCVL4-160809	LCVLICPMS_TW	1.000				
102	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		CCB4-160809	CCB ICPMS_TW	1.000				
103	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	1307		CCV4-160809	CCV ICPMS_TW	1.000				
104	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3206		1607294-15A	SAMPICPMS_TSDOD1	5.000				
105	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3207		1607294-16A	SAMPICPMS_TSDOD1	5.000				
106	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3208		1607294-17A	SAMPICPMS_TSDOD1	5.000				
107	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3209		1607294-18A	SAMPICPMS_TSDOD1	50.00				
108	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3210		1607294-19A	SAMPICPMS_TSDOD1	5.000				
109	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1101		RINSE	CCB ICPMS_TW	1.000				
110	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3211		1607294-20A	SAMPICPMS_TSDOD1	5.000				
111	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3212		1607294-21A	SAMPICPMS_TSDOD1	5.000				
112	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3301		1607294-22A	SAMPICPMS_TSDOD1	5.000				
113	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3302		1607294-23A	SAMPICPMS_TSDOD1	5.000				
114	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3303		1607294-25A	SAMPICPMS_TSDOD1	5.000				
115	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	1307		CCV5-160809	CCV ICPMS_TW	1.000				
116	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		CCB5-160809	CCB ICPMS_TW	1.000				
117	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCVL5	2512		LCVL5-160809	LCVLICPMS_TW	1.000				

	Method	Type	Vial	Data File	Sample	Comment	Dil/Lvl	ISTD Conc	Action on Failure	Skip	Result
118	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		CCB5-160809	CCB ICPMS_TW	1.000				
119	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	PB W	3401		MB-76663	MBLKICPMS_TWDOD1	1.000				
120	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCS W	3402		LCS-76663	LCS ICPMS_TWDOD1	1.000				
121	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCS W	3403		LCSD-766487	LCSDICPMS_TWDOD1	1.000				
122	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1101		RINSE	CCB ICPMS_TW	1.000				
123	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	AllRef	3404		1607337-26A	SAMPICPMS_TWDOD1	1.000				
124	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	DT	3405		1607337-26A SD	SD ICPMS_TWDOD1	5.000				
125	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	3406		1607219-13A	SAMPICPMS_TWDOD1	1.000				
126	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	3407		1607219-26A	SAMPICPMS_TWDOD1	1.000				
127	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	3408		1607239-16A	SAMPICPMS_TWDOD1	1.000				
128	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	3409		1607239-32A	SAMPICPMS_TWDOD1	1.000				
129	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1102		RINSE	CCB ICPMS_TW	1.000				
130	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	3410		1607256-13A	SAMPICPMS_TWDOD1	1.000				
131	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	3411		1607256-26A	SAMPICPMS_TWDOD1	1.000				
132	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	3412		1607256-27A	SAMPICPMS_TWDOD1	1.000				
133	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	3501		1607265-13A	SAMPICPMS_TWDOD1	1.000				
134	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	3502		1607265-26A	SAMPICPMS_TWDOD1	1.000				
135	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	PDS	3503		1607337-26A PDS	PDS ICPMS_TWDOD1	1.000				
136	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	1307		CCV6-160809	CCV ICPMS_TW	1.000				
137	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1104		CCB6-160809	CCB ICPMS_TW	1.000				
138	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCVL5	2112		LCVL6-160809	LCVLICPMS_TW	1.000				
139	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		CCB6-160809	CCB ICPMS_TW	1.000				
140	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	3504		1607294-13A	SAMPICPMS_TWDOD1	1.000				

	Method	Type	Vial	Data File	Sample	Comment	Dil/Lvl	ISTD Conc	Action on Failure	Skip	Result
141	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	3505		1607294-24A	SAMPICPMS_TWDOD1	1.000				
142	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	3506		1607294-37A	SAMPICPMS_TWDOD1	1.000				
143	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	3507		1607294-50A	SAMPICPMS_TWDOD1	1.000				
144	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	3508		1607294-63A	SAMPICPMS_TWDOD1	1.000				
145	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1101		RINSE	CCB ICPMS_TW	1.000				
146	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	3509		1607294-76A	SAMPICPMS_TWDOD1	1.000				
147	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	3510		1607314-07A	SAMPICPMS_TWDOD1	1.000				
148	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	3511		1607317-13A	SAMPICPMS_TWDOD1	1.000				
149	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	3512		1607317-26A	SAMPICPMS_TWDOD1	1.000				
150	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	3312		1607337-13A	SAMPICPMS_TWDOD1	1.000				
151	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	1307		CCV7-160809	CCV ICPMS_TW	1.000				
152	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		CCB7-160809	CCB ICPMS_TW	1.000				
153	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCVL5	2512		LCVL7-160809	LCVLICPMS_TW	1.000				
154	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		CCB7-160809	CCB ICPMS_TW	1.000				
155	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1101		RINSE	CCB ICPMS_TW	1.000				
156	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1102		RINSE	CCB ICPMS_TW	1.000				
157	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1103		RINSE	CCB ICPMS_TW	1.000				
158	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1104		RINSE	CCB ICPMS_TW	1.000				
159	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		RINSE	CCB ICPMS_TW	1.000				
160	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1101		RINSE	CCB ICPMS_TW	1.000				
161	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1102		RINSE	CCB ICPMS_TW	1.000				
162	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1103		RINSE	CCB ICPMS_TW	1.000				
163		Keyword		StandBy							
164		Keyword		SMPLEND	End of SMPL						

	Method	Type	Vial	Data File	Sample	Comment	Dil/Lvl	ISTD Conc	Action on Failure	Skip	Result
165		Keyword		End	End of Sequence						
166		Keyword		CCVBEG	Start of CCV						
167		Keyword		CCVEND	End of CCV						
168		Keyword		BLKBEG	Start of BLANK						
169		Keyword		BLKEND	End of BLANK						
170		Keyword		ERRBEG	Start of ERRTERM						
171		Keyword		ERREND	End of ERRTERM						

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **8/5/2016 10:30:04 AM**
Digestion:
Prep End Date:

Prep Batch **76687** Prep Code: **3005ADOD** Technician: **Cassie Van Dyke**

Prep Factor Units: **mL/mL**

Equipment List

- Hot Block #6
- Thermometer #71
- Pipette #P-09-Spikes
- Pipette #P-01 Samples

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607219-13A	Equip Blank		50	50	1.000	1 of 1	
wait til more project EQ BLANKS arrive to start this batch.							
1607219-26A	Equip Blank		50	50	1.000	1 of 1	
1607239-16A	Equip Blank		50	50	1.000	1 of 1	
1607239-32A	Equip Blank		50	50	1.000	1 of 1	
1607256-13A	Equip Blank		50	50	1.000	1 of 1	
1607256-26A	Equip Blank		50	50	1.000	1 of 1	
1607256-27A	Equip Blank		50	50	1.000	1 of 1	
1607265-13A	Equip Blank		50	50	1.000	1 of 1	
1607265-26A	Equip Blank		50	50	1.000	1 of 1	
1607294-13A	Equip Blank		50	50	1.000	1 of 1	
1607294-24A	Equip Blank		50	50	1.000	1 of 1	
1607294-37A	Equip Blank		50	50	1.000	1 of 1	
1607294-50A	Equip Blank		50	50	1.000	1 of 1	
1607294-63A	Equip Blank		50	50	1.000	1 of 1	
1607294-76A	Equip Blank		50	50	1.000	1 of 1	
1607314-07A	Equip Blank		50	50	1.000	1 of 1	
1607317-13A	Equip Blank		50	50	1.000	1 of 1	
1607317-26A	Equip Blank		50	50	1.000	1 of 1	
1607337-13A	Aqueous		50	50	1.000	1 of 1	
1607337-26A	Aqueous		50	50	1.000	1 of 1	
LCS-76687	Aqueous		50	50	1.000	of	
LCSD-76687	Aqueous		50	50	1.000	of	
MB-76687	Aqueous		50	50	1.000	of	

Number	Reagent Name	Amt	Units	Exp. Da
10056	Digestion Vessels	1	ml	02/10/2026
10399	Nitric Acid (Trace Metal Grade)	1	ml	05/24/2026
10400	Hydrochloric Acid (trace metal grade)	1	ml	05/24/2026

Spk ID	Spike Name	Samp Type	Amt (mL or g)	Exp. Date
MET-150914-10	AL PRIMARY STD 1000 PPM	LCS/MS/MSD	0.25	10/01/2016
MET-150914-9	FE PRIMARY STD 1000 PPM	LCS/MS/MSD	0.25	10/01/2016
MET-SPIKE-160701-3	2500 PPM NATURALS SPIKE	LCS/MS/MSD	0.1	09/29/2016
MET-SPIKE-160715-4B	50 PPM Sb+Ag CAL	LCS/MS/MSD	0.2	10/13/2016
MET-SPIKE-160715-5B	50 PPM Custom+Sn,Ti,B,Mo,Sr CAL	LCS/MS/MSD	0.2	10/13/2016

~~10:53~~ CHO 8-5-16
12:32 - 18:16

REVIEWED BY
By Janice Whitt at 2:24:16 PM, 8/10/2016

8/5/18

MECHANICAL VOLUMETRIC PIPETTE VOLUME DAILY CHECK - DOD QSM 5.0

ANALYST:	SP	**BALANCE #:**	26	
TEST DATE:	08/05/2016	**Water is at Room Temperatue (70-73°F) / (21-23°C)**		
PIPETTER LAB ID:	P-01, P-09	**WATER TEMP (°C):**	**21-23°C**	
TEST VOLUME:	See Below	**WATER DENSITY:**	**0.998**	**(0.9980-0.9976)**

REFERENCE:	DoD QSM 5.0
# of REPLICATES:	3
LABWARE TYPE:	MECHANICAL VOLUMETRIC PIPETTE
FREQUENCY:	DAILY BEFORE USE
MEAN CRITERIA:	± 2% OF NOMINAL VOLUME (VOLUME OF USE/TEST VOLUME)
RSD CRITERIA:	< 1% OF NOMINAL VOLUME (BASED ON MINIMUM OF 3 REPLICATE MEASUREMENTS)

1) RECORD ROOM AND WATER TEMPERATURE	**% TEST VOL = Volume of H2O at °C/Test Volume * 100**
2) TARE VESSEL ON BALANCE. ADD TEST VOLUME.	**%RSD = STDEV (Mean Volume)/AVERAGE (Mean Volume) *100**
3) WEIGH 3 REPLICATES AT THE TEST VOLUME.	
4) DETERMINE TOTAL WT.	
5) CALCULATE VOLUME OF H2O AT °C (in mL)	**VOLUME OF H2O AT °C = TOTAL WT / WATER DENSITY**

					BIAS	PRECISION
PIPETTE ID: P-01	**TEST VOLUME (mL)**	**TOTAL WT (g)**	**Volume of H_2O at °C**	**% TEST VOL (98-102%)**	**MEAN CRITERIA (± 2%)**	**% RSD Calculated**
1	**5.00**	5.0031	5.0131	**100.26**	**PASS**	**RSD MUST BE ≤ 1% OF TEST VOLUME VALUE**
2		4.9858	4.9958	**99.92**		
3		4.9726	4.9826	**99.65**		
AVERAGE (MEAN)		**4.987**	**4.997**	**99.94**		**0.307**
						PASS

PIPETTE ID: P-09	**TEST VOLUME (mL)**	**TOTAL WT (g)**	**Volume of H_2O at °C**	**% TEST VOL (98-102%)**	**MEAN CRITERIA (± 2%)**	**% RSD Calculated**
1	**0.20**	0.2014	0.2018	**100.90**	**PASS**	**RSD MUST BE ≤ 1% OF TEST VOLUME VALUE**
2		0.2021	0.2025	**101.25**		
3		0.2021	0.2025	**101.25**		
AVERAGE (MEAN)		**0.202**	**0.202**	**101.14**		**0.200**
						PASS

PIPETTE ID:	**TEST VOLUME (mL)**	**TOTAL WT (g)**	**Volume of H_2O at °C**	**% TEST VOL (98-102%)**	**MEAN CRITERIA (± 2%)**	**% RSD Calculated**
1						**RSD MUST BE ≤ 1% OF TEST VOLUME VALUE**
2						
3						
AVERAGE (MEAN)						

8/5/16
Analyst / Date

REVIEWED BY
By Janice Whitt at 2:24:24 PM, 8/10/2016
Review and Approved / Date

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **8/5/2016 10:30:04 AM**
Digestion: **Start: 8/5/2016 12:32:00 PM / Stop: 8/5/2016 6:16:00 PM**
Prep End Date: **8/5/2016 6:34:00 PM**

Prep Batch **76687** Prep Code: **3005ADOD** Technician: **Cassie Van Dyke**

Prep Factor Units: **mL/mL**

Equipment List

Hot Block #6
Thermometer #71
Pipette #P-09-Spikes
Pipette #P-01 Samples

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607219-13A	Equip Blank		50	50	1.000	1 of 1	
	wait til more project EQ BLANKS arrive to start this batch.						
1607219-26A	Equip Blank		50	50	1.000	1 of 1	
1607239-16A	Equip Blank		50	50	1.000	1 of 1	
1607239-32A	Equip Blank		50	50	1.000	1 of 1	
1607256-13A	Equip Blank		50	50	1.000	1 of 1	
1607256-26A	Equip Blank		50	50	1.000	1 of 1	
1607256-27A	Equip Blank		50	50	1.000	1 of 1	
1607265-13A	Equip Blank		50	50	1.000	1 of 1	
1607265-26A	Equip Blank		50	50	1.000	1 of 1	
1607294-13A	Equip Blank		50	50	1.000	1 of 1	
1607294-24A	Equip Blank		50	50	1.000	1 of 1	
1607294-37A	Equip Blank		50	50	1.000	1 of 1	
1607294-50A	Equip Blank		50	50	1.000	1 of 1	
1607294-63A	Equip Blank		50	50	1.000	1 of 1	
1607294-76A	Equip Blank		50	50	1.000	1 of 1	
1607314-07A	Equip Blank		50	50	1.000	1 of 1	
1607317-13A	Equip Blank		50	50	1.000	1 of 1	
1607317-26A	Equip Blank		50	50	1.000	1 of 1	
1607337-13A	Aqueous		50	50	1.000	1 of 1	
1607337-26A	Aqueous		50	50	1.000	1 of 1	
1607337-26A PDS	Aqueous		50	50	1.000	of	
1607337-26A SD	Aqueous		50	50	1.000	of	
LCS-76687	Aqueous		50	50	1.000	of	
LCSD-76687	Aqueous		50	50	1.000	of	
MB-76687	Aqueous		50	50	1.000	of	

Number	Reagent Name	Amt	Units	Exp. Da
10056	Digestion Vessels	1	ml	02/10/2026
10399	Nitric Acid (Trace Metal Grade)	1	ml	05/24/2026
10400	Hydrochloric Acid (trace metal grade)	1	ml	05/24/2026

Spk ID	Spike Name	SampType	Amt (mL or g)	Exp. Date
MET-150914-10	AL PRIMARY STD 1000 PPM	LCS/MS/MSD	0.25	10/01/2016
MET-150914-9	FE PRIMARY STD 1000 PPM	LCS/MS/MSD	0.25	10/01/2016
MET-SPIKE-160701-3	2500 PPM NATURALS SPIKE	LCS/MS/MSD	0.1	09/29/2016
MET-SPIKE-160715-4B	50 PPM Sb+Ag CAL	LCS/MS/MSD	0.2	10/13/2016
MET-SPIKE-160715-5B	50 PPM Custom+Sn,Ti,B,Mo,Sr CAL	LCS/MS/MSD	0.2	10/13/2016

REVIEWED BY
By Janice Whitt at 2:24:21 PM, 8/10/2016

MECHANICAL VOLUMETRIC PIPETTE VOLUME DAILY CHECK - DOD QSM 5.0

ANALYST:	RO	**BALANCE #:**	30	
TEST DATE:	08/09/2016	**Water is at Room Temperatue (70-73°F) / (21-23°C)**		
PIPETTER LAB ID:	See Below	**WATER TEMP (°C):**	**21-23°C**	
TEST VOLUME:	See Below	**WATER DENSITY:**	**0.998**	**(0.9980-0.9976)**

REFERENCE:	DoD QSM 5.0
# of REPLICATES:	3
LABWARE TYPE:	MECHANICAL VOLUMETRIC PIPETTE
FREQUENCY:	DAILY BEFORE USE
MEAN CRITERIA:	± 2% OF NOMINAL VOLUME (VOLUME OF USE/TEST VOLUME)
RSD CRITERIA:	< 1% OF NOMINAL VOLUME (BASED ON MINIMUM OF 3 REPLICATE MEASUREMENTS)

1) RECORD ROOM AND WATER TEMPERATURE	**% TEST VOL = Volume of H2O at °C/Test Volume * 100**
2) TARE VESSEL ON BALANCE. ADD TEST VOLUME.	**%RSD = STDEV (Mean Volume)/AVERAGE (Mean Volume) *100**
3) WEIGH 3 REPLICATES AT THE TEST VOLUME.	
4) DETERMINE TOTAL WT.	
5) CALCULATE VOLUME OF H2O AT °C (in mL)	**VOLUME OF H2O AT °C = TOTAL WT * WATER DENSITY**

					BIAS	PRECISION
PIPETTE ID: P-31	**TEST VOLUME (mL)**	**TOTAL WT (g)**	**Volume of H_2O at °C**	**% TEST VOL (98-102%)**	**MEAN CRITERIA (± 2%)**	**% RSD Calculated**
1	**4.00**	3.9957	3.9877	**99.69**	**PASS**	**RSD MUST BE ≤ 1% OF TEST VOLUME VALUE**
2		4.0006	3.9926	**99.81**		
3		4.0002	3.9922	**99.80**		
AVERAGE (MEAN)		**3.999**	**3.991**	**99.77**		**0.068**
						PASS

PIPETTE ID: P-21	**TEST VOLUME (mL)**	**TOTAL WT (g)**	**Volume of H_2O at °C**	**% TEST VOL (98-102%)**	**MEAN CRITERIA (± 2%)**	**% RSD Calculated**
1	**1.00**	0.9962	0.9942	**99.42**	**PASS**	**RSD MUST BE ≤ 1% OF TEST VOLUME VALUE**
2		0.9969	0.9949	**99.49**		
3		0.9970	0.9950	**99.50**		
AVERAGE (MEAN)		**0.997**	**0.995**	**99.47**		**0.044**
						PASS

PIPETTE ID: P-39	**TEST VOLUME (mL)**	**TOTAL WT (g)**	**Volume of H_2O at °C**	**% TEST VOL (98-102%)**	**MEAN CRITERIA (± 2%)**	**% RSD Calculated**
1	**0.500**	0.5031	0.5021	**100.42**	**PASS**	**RSD MUST BE ≤ 1% OF TEST VOLUME VALUE**
2		0.5007	0.4997	**99.94**		
3		0.5000	0.4990	**99.80**		
AVERAGE (MEAN)		**0.501**	**0.500**	**100.05**		**0.324**
						PASS

8/9/16

Analyst / Date

REVIEWED BY
By Janice Whitt at 2:24:29 PM, 8/10/2016

Review and Approved / Date

Calibration Summary Report

Instrument: ICPMS3
Current Method: C:\ICPCHEM\1\METHODS\DHL_3Fe.M
Calibration: C:\ICPCHEM\1\CALIB\DHL_3FE.c
Last Update: Aug 09 2016 01:04 pm
Cal Type: Y=aX+[blank]

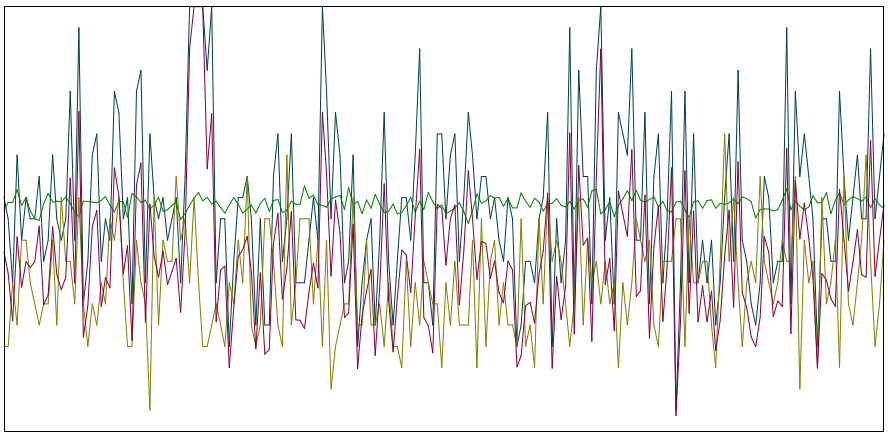
Standard	Date Acquired	File
BLANK STD 1	Aug 9 2016 12:19 pm	c:\icpchem\1\data\16h09l01.b\006calb.d\
L2-160809	Aug 9 2016 12:25 pm	c:\icpchem\1\data\16h09l01.b\007cals.d\
L-160809	Aug 9 2016 12:31 pm	c:\icpchem\1\data\16h09l01.b\008cals.d\
10X-160809	Aug 9 2016 12:37 pm	c:\icpchem\1\data\16h09l01.b\009cals.d\
5X-160809	Aug 9 2016 12:43 pm	c:\icpchem\1\data\16h09l01.b\010cals.d\
2X-160809	Aug 9 2016 12:49 pm	c:\icpchem\1\data\16h09l01.b\011cals.d\

Element Name	Corr Coef	Coef A	Coef B	Lvl 2	Lvl 6	Lvl 7	L7 %R	Lvl 8	L8 %R
Li	1.0000	0.268	0.01985	0.99	249	499		2000	
Be	1.0000	0.08936	0.002333	0.99	249	500	100%	--------	######
B	1.0000	0.07365	0.1211	0.95	253	515	103%	1,996	100%
Na	0.9998	0.3335	28.74	19.01	5,319	10,360	104%	24,790	99%
Mg	0.9997	0.1475	0.5455	20.73	5,030	10,510	105%	24,790	99%
Al	1.0000	0.03438	0.4037	18.43	5,019	9,994	100%	--------	######
K	0.9999	0.07325	5.923	20.58	4,926	9,747	97%	25,120	100%
Ca	1.0000	0.008733	0.4669	16.00	5,206	10,090	101%	24,920	100%
Ti	1.0000	0.03017	0.002252	1.06	246	490	98%	2,003	100%
V	1.0000	1.245	0.2631	0.98	248	493	99%	2,002	100%
Cr	1.0000	1.669	0.2947	1.03	253	502	100%	1,999	100%
Mn	1.0000	0.6497	0.07648	1.05	248	488	98%	2,003	100%
Fe	1.0000	2.273	16.06	21.37	4,997	9,989	100%	--------	######
Co	0.9999	5.267	0.1233	1.02	258	530	106%	1,991	100%
Ni	1.0000	1.567	0.1314	1.05	254	500	100%	1,999	100%
Cu	0.9999	4.208	0.5701	1.10	261	525	105%	1,992	100%
Zn	0.9999	0.4055	0.1696	1.03	265	519	104%	1,993	100%
As	1.0000	0.2296	0.1832	1.12	254	505	101%	1,998	100%
Se	1.0000	0.01281	0.009769	1.02	257	508	102%	1,997	100%
Sr	1.0000	0.338	0.06304	0.95	249	488	98%	2,003	100%
Mo	0.9997	0.06146	0.00307	0.97	241	506	101%	--------	######
Ag	0.9999	0.1534	0.002437	1.02	255	498	100%	--------	######
Cd	1.0000	0.0328	0.001133	0.95	248	492	98%	2,002	100%
Sn	1.0000	0.08901	0.008757	0.98	247	507	101%	1,999	100%
Sb	0.9999	0.1054	0.002497	1.00	245	503	101%	--------	######
Ba	1.0000	0.04162	0.002829	0.95	242	486	97%	2,005	100%
Tl	1.0000	0.3276	0.008287	0.94	254	504	101%	1,999	100%
Pb	1.0000	0.4441	0.02947	0.95	251	509	102%	1,998	100%

REVIEWED BY
By Janice Whitt at 2:24:38 PM, 8/10/2016

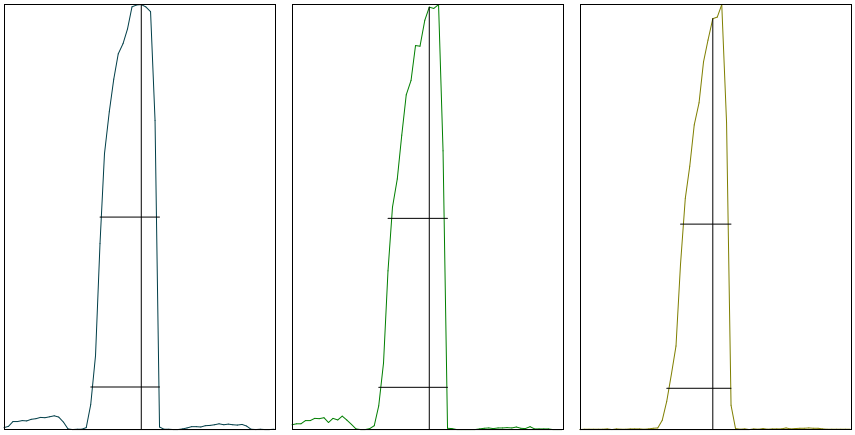
Tune Report

Tune File : He.U
Comment :



Integration Time:	0.1000 sec	
Sampling Period:	0.3100 sec	
n:	200	
Oxide:	156/140	0.306%
Doubly Charged:	70/140	2.638%

m/z	Range	Count	Mean	RSD%	Background
51	20	14.0	10.9	46.06	1.60
59	5,000	2628.0	2678.1	2.98	1.10
75	20	9.0	7.0	35.60	1.00
51/59	1	0.533%	0.409%	45.59	



m/z:	59	89	205
Height:	2,706	1,269	4,406
Axis:	59.05	89.05	205.00
W-50%:	0.65	0.65	0.55
W-10%:	0.7500	0.7500	0.700

Integration Time:	0.1000 sec
Acquisition Time:	22.5600 sec

Y axis : Linear

Generated : Aug 09, 2016 11:04:34
Printed : Aug 09, 2016 11:04:36

Tune Report

Tune File : He.U
Comment :

Tuning Parameters

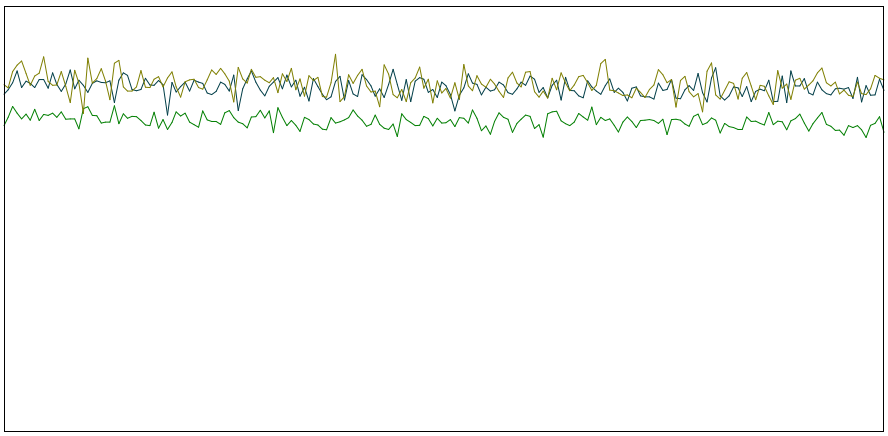
===Plasma Condition===				===Ion Lenses===				===Q-Pole Parameters===			
RF Power	:	1600	W	Extract 1	:	0	V	AMU Gain	:	124	
RF Matching	:	1.6	V	Extract 2	:	-150	V	AMU Offset	:	120	
Smpl Depth	:	9	mm	Omega Bias-ce	:	-20	V	Axis Gain	:	0.9993	
Torch-H	:	0	mm	Omega Lens-ce	:	0	V	Axis Offset	:	-0.03	
Torch-V	:	0.8	mm	Cell Entrance	:	-40	V	QP Bias	:	-14	V
Carrier Gas	:	1.2	L/min	QP Focus	:	-10	V				
Makeup Gas	:	0	L/min	Cell Exit	:	-40	V	===Detector Parameters===			
Optional Gas	:	---	%					Discriminator	:	8	mV
Nebulizer Pump	:	0.1	rps	===Octopole Parameters===				Analog HV	:	1750	V
Sample Pump	:	---	rps	OctP RF	:	170	V	Pulse HV	:	1520	V
S/C Temp	:	2	degC	OctP Bias	:	-16	V				

===Reaction Cell===

Reaction Mode	:	ON									
H2 Gas	:	0	mL/min	He Gas	:	4.8	mL/min	Optional Gas	:	---	%

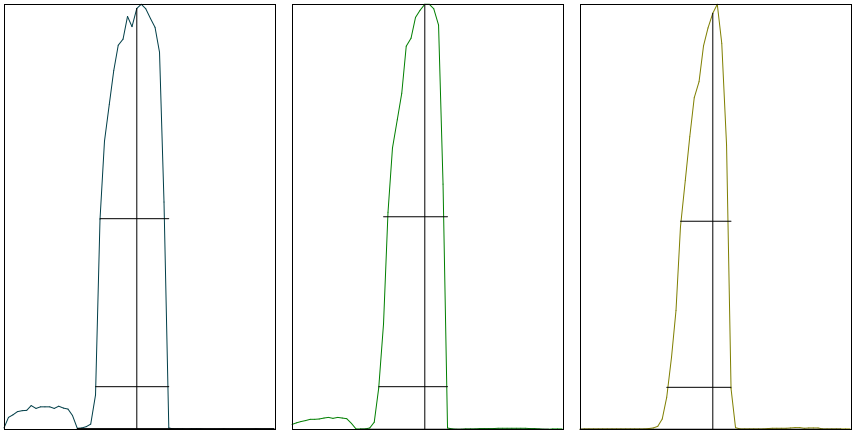
Tune Report

Tune File : nogas.u
Comment :



Integration Time:	0.1000 sec	
Sampling Period:	0.8200 sec	
n:	200	
Oxide:	156/140	1.036%
Doubly Charged:	70/140	3.195%

m/z	Range	Count	Mean	RSD%	Background
7	10,000	8026.0	8085.8	2.44	4.20
89	20,000	14074.0	14604.4	2.06	7.20
205	10,000	8272.0	8182.5	3.16	16.80
156/140	2	0.948%	1.060%	9.87	
70/140	5	3.253%	3.102%	11.05	
63	20,000	10979.0	11198.9	2.42	5.30
23	100,000	69620.0	61786.5	11.40	4.40



m/z:	7	89	205
Height:	8,017	14,600	8,176
Axis:	7.00	89.00	205.00
W-50%:	0.75	0.70	0.55
W-10%:	0.800	0.7500	0.700

Integration Time:	0.1000 sec
Acquisition Time:	22.7600 sec

Y axis : Linear

Generated : Aug 09, 2016 10:45:01
Printed : Aug 09, 2016 10:45:03

Tune Report

Tune File : nogas.u
Comment :

Tuning Parameters

===Plasma Condition===				===Ion Lenses===				===Q-Pole Parameters===			
RF Power	:	1600	W	Extract 1	:	0	V	AMU Gain	:	124	
RF Matching	:	1.6	V	Extract 2	:	-150	V	AMU Offset	:	120	
Smpl Depth	:	9	mm	Omega Bias-ce	:	-22	V	Axis Gain	:	0.9993	
Torch-H	:	0	mm	Omega Lens-ce	:	-1.4	V	Axis Offset	:	-0.03	
Torch-V	:	0.8	mm	Cell Entrance	:	-26	V	QP Bias	:	-3	V
Carrier Gas	:	1.2	L/min	QP Focus	:	0	V				
Makeup Gas	:	0	L/min	Cell Exit	:	-40	V	===Detector Parameters===			
Optional Gas	:	---	%					Discriminator	:	8	mV
Nebulizer Pump	:	0.1	rps	===Octopole Parameters===				Analog HV	:	1750	V
Sample Pump	:	---	rps	OctP RF	:	170	V	Pulse HV	:	1520	V
S/C Temp	:	2	degC	OctP Bias	:	-6	V				

===Reaction Cell===

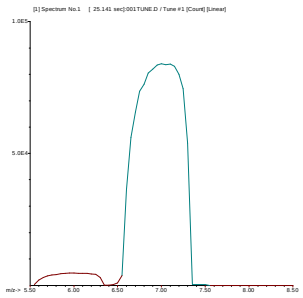
Reaction Mode	:	OFF									
H2 Gas	:	0	mL/min	He Gas	:	0	mL/min	Optional Gas	:	---	%

6020 QC Tune Report

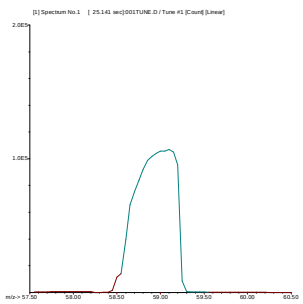
Data File: C:\ICPCHEM\1\DATA\16H09l00.B\001TUNE.D
Date Acquired: Aug 9 2016 11:24 am
Acq. Method: TN6020.M
Operator: KL
Sample Name: TUNE CHECK
Misc Info:
Vial Number: 1301
Current Method: C:\ICPCHEM\1\METHODS\TN6020.M

RSD (%)

Element	Actual	Required	Flag
7 Li	2.25	5.00	
59 Co	2.48	5.00	
115 In	2.60	5.00	
205 Tl	2.47	5.00	



7 Li
Mass Calib.
Actual: 7.05
Required: 6.90 - 7.10
Flag:
Peak Width
Actual: 0.70
Required: 0.90
Flag:



59 Co
Mass Calib.
Actual: 59.05
Required: 58.90 - 59.10
Flag:
Peak Width
Actual: 0.60
Required: 0.90
Flag:

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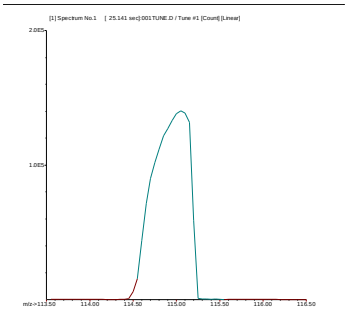
By Janice Whitt at 2:24:52 PM, 8/10/2016



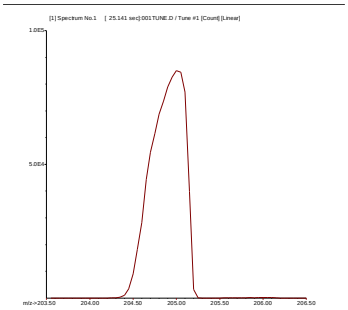
115 In

Mass Calib.

Actual:	115.05	
Required:	114.90 -	115.10
Flag:		

Peak Width

Actual:	0.60
Required:	0.90
Flag:	



205 Tl

Mass Calib.

Actual:	205.00	
Required:	204.90 -	205.10
Flag:		

Peak Width

Actual:	0.60
Required:	0.90
Flag:	

REVIEWED BY
By Janice Whitt at 2:24:54 PM, 8/10/2016

P/A Factor Tuning Report

Acquired:Aug 9 2016 11:20 am

Mass[amu]	Element	P/A Factor
6	Li	0.063716
23	Na	0.078069
24	Mg	0.081357
27	Al	0.083901
39	K	0.084057
44	Ca	Sensitivity too low
45	Sc	0.085164
47	Ti	Sensitivity too low
51	V	0.087056
52	Cr	0.089224
55	Mn	0.090623
59	Co	0.093388
60	Ni	0.094882
63	Cu	0.096643
66	Zn	0.096211
72	Ge	0.095488
75	As	0.094779
78	Se	Sensitivity too low
88	Sr	0.095797
95	Mo	0.094955
106	(Cd)	0.099887
107	Ag	Sensitivity too low
108	(Cd)	0.100044
111	Cd	0.100780
115	In	0.100761
118	Sn	0.100418
121	Sb	0.100203
137	Ba	Sensitivity too low
205	Tl	0.107503
206	(Pb)	0.107327
207	(Pb)	0.107559
208	Pb	0.107816
209	Bi	0.107471
238		0.107352

===Detector Parameters===
  Discriminator: 8.0 mV
      Analog HV: 1750 V
       Pulse HV: 1520 V

REVIEWED BY
By Janice Whitt at 2:25:00 PM, 8/10/2016

Calibration Blank QC Report

Acq. Method: DHL_3Fe.M Sample Name: BLANK STD 1
Operator: KL Instrument: ICPMS3
Last Cal. Update: Aug 09 2016 12:23 pm
Date Acquired: Aug 9 2016 12:19 pm

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)
6	Li	2	---	76.78	P	19.44	25.32
7	Li	2	45	635.60	P	13.88	2.18
9	Be	2	45	74.45	P	30.06	40.38
11	B	2	45	3880.74	P	124.70	3.21
23	Na	1	45	22714.67	P	247.20	1.09
24	Mg	1	45	431.14	P	27.15	6.30
27	Al	1	45	319.12	P	13.35	4.18
39	K	1	45	4681.08	P	182.30	3.89
44	Ca	2	45	14942.25	P	783.20	5.24
45	Sc	1	---	158070.20	P	400.30	0.25
45	Sc	2	---	6406945.00	A	148100.00	2.31
47	Ti	1	45	1.78	P	1.54	86.62
51	V	1	45	208.01	P	24.44	11.75
51	V	2	---		P		
52	Cr	1	45	232.89	P	13.88	5.96
55	Mn	1	45	60.45	P	5.05	8.35
56	Fe	1	72	7118.21	P	361.20	5.07
59	Co	1	72	54.67	P	2.31	4.22
60	Ni	1	72	58.22	P	5.55	9.53
60	Ni	2	---		P		
63	Cu	1	72	252.45	P	45.26	17.93
63	Cu	2	---		P		
66	Zn	1	72	75.11	P	8.15	10.85
66	Zn	2	---		P		
72	Ge	1	---	88651.82	P	776.40	0.88
72	Ge	2	---		A		
75	As	1	72	81.19	P	4.56	5.62
78	Se	1	72	4.33	P	0.73	16.81
88	Sr	2	###	2327.00	P	180.20	7.74
95	Mo	2	###	113.34	P	15.28	13.48
107	Ag	2	###	90.00	P	6.67	7.41
111	Cd	2	###	41.74	P	22.60	54.14
115	In	2	---	7384352.00	A	47310.00	0.64
118	Sn	2	###	323.35	P	16.67	5.16
121	Sb	2	###	92.23	P	7.70	8.35
137	Ba	2	###	104.45	P	22.20	21.25
205	Tl	2	###	215.57	P	21.17	9.82
208	Pb	2	###	766.71	P	129.90	16.94
209	Bi	2	---	5202967.00	A	16760.00	0.32

Calibration Standard QC Report

Acq. Method: DHL_3Fe.M Sample Name: L2-160809
Operator: KL Instrument: ICPMS3
Date Acquired: Aug 9 2016 12:25 pm
Last Cal. Update: Aug 09 2016 12:23 pm

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)	Flag
6	Li	2	---	-276.34	P	37.83	13.69	ISFail
7	Li	2	45	9129.18	P	280.10	3.07	
9	Be	2	45	2910.46	P	77.69	2.67	
11	B	2	45	6155.09	P	170.80	2.77	
23	Na	1	45	28183.59	P	322.20	1.14	
24	Mg	1	45	2894.90	P	138.50	4.78	
27	Al	1	45	833.38	P	29.25	3.51	
39	K	1	45	5969.45	P	193.70	3.24	
44	Ca	2	45	19511.07	P	2212.00	11.34	
45	Sc	1	---	160684.70	P	2314.00	1.44	
45	Sc	2	---	6429131.00	A	68010.00	1.06	
47	Ti	1	45	27.56	P	1.54	5.59	
51	V	1	45	1194.74	P	39.62	3.32	
51	V	2	---		P			
52	Cr	1	45	1623.24	P	14.26	0.88	
55	Mn	1	45	608.03	P	25.44	4.18	
56	Fe	1	72	28900.35	P	2962.00	10.25	
59	Co	1	72	2465.62	P	87.97	3.57	
60	Ni	1	72	796.93	P	55.31	6.94	
60	Ni	2	---		P			
63	Cu	1	72	2316.25	P	46.28	2.00	
63	Cu	2	---		P			
66	Zn	1	72	261.79	P	17.71	6.77	
66	Zn	2	---		P			
72	Ge	1	---	89405.56	P	917.80	1.03	
72	Ge	2	---		A			
75	As	1	72	197.11	P	4.29	2.18	
78	Se	1	72	10.22	P	0.51	4.98	
88	Sr	2	115	14278.91	P	588.80	4.12	
95	Mo	2	115	2323.65	P	64.30	2.77	
107	Ag	2	115	5893.90	P	231.20	3.92	
111	Cd	2	115	1197.38	P	58.34	4.87	
115	In	2	---	7443953.00	A	81490.00	1.09	
118	Sn	2	115	3580.69	P	47.04	1.31	
121	Sb	2	115	4014.18	P	113.60	2.83	
137	Ba	2	115	1577.95	P	66.78	4.23	
205	Tl	2	209	8330.07	P	211.40	2.54	
208	Pb	2	209	11870.80	P	191.10	1.61	
209	Bi	2	---	5250363.00	A	48340.00	0.92	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-276.34	13.69	76.78	-359.9	70 - 120	ISFail
45	Sc	1	160684.72	1.44	158070.19	101.7	70 - 120	
45	Sc	2	6429130.50	1.06	6406944.50	100.3	70 - 120	
72	Ge	1	89405.56	1.03	88651.82	100.9	70 - 120	
115	In	2	7443953.00	1.09	7384352.50	100.8	70 - 120	
209	Bi	2	5250363.50	0.92	5202967.00	100.9	70 - 120	

Calibration Standard QC Report

Acq. Method: DHL_3Fe.M Sample Name: L-160809
Operator: KL Instrument: ICPMS3
Date Acquired: Aug 9 2016 12:31 pm
Last Cal. Update: Aug 09 2016 12:29 pm

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)	Flag
6	Li	2	---	-3881.67	P	60.33	1.55	ISFail
7	Li	2	45	86910.47	P	940.50	1.08	Fail
9	Be	2	45	29447.30	P	565.20	1.92	Fail
11	B	2	45	27210.25	P	574.80	2.11	Fail
23	Na	1	45	78668.42	P	825.80	1.05	Fail
24	Mg	1	45	25039.14	P	435.10	1.74	Fail
27	Al	1	45	5952.62	P	89.59	1.51	Fail
39	K	1	45	16334.60	P	268.70	1.65	Fail
44	Ca	2	45	70195.96	P	3159.00	4.50	Fail
45	Sc	1	---	161571.00	P	1929.00	1.19	
45	Sc	2	---	6453811.00	A	142600.00	2.21	
47	Ti	1	45	260.01	P	35.50	13.65	Fail
51	V	1	45	10266.17	P	219.20	2.14	Fail
51	V	2	---		P			
52	Cr	1	45	14166.06	P	190.20	1.34	Fail
55	Mn	1	45	5238.97	P	39.95	0.76	Fail
56	Fe	1	72	213754.41	P	1903.00	0.89	Fail
59	Co	1	72	24702.73	P	305.40	1.24	
60	Ni	1	72	7330.29	P	214.90	2.93	Fail
60	Ni	2	---		P			
63	Cu	1	72	20624.14	P	340.20	1.65	Fail
63	Cu	2	---		P			
66	Zn	1	72	2102.88	P	42.78	2.03	Fail
66	Zn	2	---		P			
72	Ge	1	---	90222.60	P	954.20	1.06	
72	Ge	2	---		A			
75	As	1	72	1138.61	P	9.52	0.84	Fail
78	Se	1	72	66.48	P	5.04	7.58	Fail
88	Sr	2	115	124450.40	P	2670.00	2.15	Fail
95	Mo	2	115	22071.00	P	419.80	1.90	Fail
107	Ag	2	115	57970.12	P	1503.00	2.59	Fail
111	Cd	2	115	12490.16	P	478.50	3.83	Fail
115	In	2	---	7406828.00	A	96950.00	1.31	
118	Sn	2	115	32855.11	P	416.50	1.27	Fail
121	Sb	2	115	38465.25	P	1177.00	3.06	Fail
137	Ba	2	115	15112.49	P	550.50	3.64	Fail
205	Tl	2	209	83036.09	P	850.40	1.02	Fail
208	Pb	2	209	115560.00	P	1813.00	1.57	Fail
209	Bi	2	---	5219492.00	A	55050.00	1.05	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-3881.67	1.55	76.78	-5055.8	70 - 120	ISFail
45	Sc	1	161570.98	1.19	158070.19	102.2	70 - 120	
45	Sc	2	6453811.50	2.21	6406944.50	100.7	70 - 120	
72	Ge	1	90222.60	1.06	88651.82	101.8	70 - 120	
115	In	2	7406828.00	1.31	7384352.50	100.3	70 - 120	
209	Bi	2	5219491.50	1.05	5202967.00	100.3	70 - 120	

Calibration Standard QC Report

Acq. Method: DHL_3Fe.M Sample Name: 10X-160809
Operator: KL Instrument: ICPMS3
Date Acquired: Aug 9 2016 12:37 pm
Last Cal. Update: Aug 09 2016 12:35 pm

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)	Flag
6	Li	2	---	-19629.23	P	383.20	1.95	ISFail
7	Li	2	45	432408.59	P	8261.00	1.91	Fail
9	Be	2	45	144443.50	P	2969.00	2.06	Fail
11	B	2	45	120068.30	P	1757.00	1.46	Fail
23	Na	1	45	295790.41	P	1604.00	0.54	Fail
24	Mg	1	45	119897.70	P	957.30	0.80	Fail
27	Al	1	45	27945.11	P	356.30	1.28	Fail
39	K	1	45	63314.89	P	311.10	0.49	Fail
44	Ca	2	45	290460.09	P	9086.00	3.13	Fail
45	Sc	1	---	163871.50	P	1400.00	0.85	
45	Sc	2	---	6441649.00	A	124900.00	1.94	
47	Ti	1	45	1160.08	P	42.92	3.70	Fail
51	V	1	45	50469.89	P	868.10	1.72	Fail
51	V	2	---		P			
52	Cr	1	45	68834.85	P	602.80	0.88	Fail
55	Mn	1	45	26142.08	P	417.90	1.60	Fail
56	Fe	1	72	1069612.00	A	24000.00	2.24	Fail
59	Co	1	72	121947.00	P	1160.00	0.95	
60	Ni	1	72	35924.11	P	658.70	1.83	
60	Ni	2	---		P			
63	Cu	1	72	100456.60	P	498.00	0.50	Fail
63	Cu	2	---		P			
66	Zn	1	72	9852.08	P	58.18	0.59	Fail
66	Zn	2	---		P			
72	Ge	1	---	90028.47	P	394.00	0.44	
72	Ge	2	---		A			
75	As	1	72	5389.93	P	49.54	0.92	Fail
78	Se	1	72	308.04	P	9.84	3.20	Fail
88	Sr	2	115	602337.50	P	12840.00	2.13	Fail
95	Mo	2	115	108354.30	P	2536.00	2.34	Fail
107	Ag	2	115	282736.09	P	5107.00	1.81	Fail
111	Cd	2	115	61328.21	P	1125.00	1.83	Fail
115	In	2	---	7387452.00	A	82820.00	1.12	
118	Sn	2	115	159923.91	P	2799.00	1.75	Fail
121	Sb	2	115	189023.00	P	4633.00	2.45	Fail
137	Ba	2	115	73661.36	P	1339.00	1.82	Fail
205	Tl	2	209	410096.00	P	4859.00	1.18	Fail
208	Pb	2	209	560275.31	P	9752.00	1.74	Fail
209	Bi	2	---	5195223.00	A	67090.00	1.29	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-19629.24	1.95	76.78	-25566.9	70 - 120	ISFail
45	Sc	1	163871.55	0.85	158070.19	103.7	70 - 120	
45	Sc	2	6441649.50	1.94	6406944.50	100.5	70 - 120	
72	Ge	1	90028.47	0.44	88651.82	101.6	70 - 120	
115	In	2	7387452.50	1.12	7384352.50	100.0	70 - 120	
209	Bi	2	5195223.50	1.29	5202967.00	99.9	70 - 120	

Calibration Standard QC Report

Acq. Method: DHL_3Fe.M Sample Name: 5X-160809
Operator: KL Instrument: ICPMS3
Date Acquired: Aug 9 2016 12:43 pm
Last Cal. Update: Aug 09 2016 12:41 pm

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)	Flag
6	Li	2	---	-39450.97	P	848.30	2.15	ISFail
7	Li	2	45	859389.31	A	4295.00	0.50	Fail
9	Be	2	45	288149.81	P	5638.00	1.96	Fail
11	B	2	45	237918.00	P	3433.00	1.44	Fail
23	Na	1	45	568962.38	P	7291.00	1.28	Fail
24	Mg	1	45	239276.80	P	2504.00	1.05	Fail
27	Al	1	45	55187.29	P	557.70	1.01	Fail
39	K	1	45	120214.40	P	144.40	0.12	Fail
44	Ca	2	45	556133.69	P	12600.00	2.27	Fail
45	Sc	1	---	160100.41	P	785.10	0.49	
45	Sc	2	---	6261295.00	A	110100.00	1.76	
47	Ti	1	45	2330.48	P	68.35	2.93	
51	V	1	45	98896.30	P	1086.00	1.10	Fail
51	V	2	---		A			
52	Cr	1	45	134880.20	P	1476.00	1.09	Fail
55	Mn	1	45	51629.94	P	259.30	0.50	
56	Fe	1	72	2048862.00	A	26700.00	1.30	Fail
59	Co	1	72	240143.91	P	3156.00	1.31	
60	Ni	1	72	70495.25	P	308.50	0.44	
60	Ni	2	---		P			
63	Cu	1	72	195537.50	P	2292.00	1.17	
63	Cu	2	---		P			
66	Zn	1	72	19348.32	P	160.80	0.83	Fail
66	Zn	2	---		P			
72	Ge	1	---	88032.42	P	653.70	0.74	
72	Ge	2	---		A			
75	As	1	72	10479.46	P	46.78	0.45	Fail
78	Se	1	72	601.65	P	3.54	0.59	Fail
88	Sr	2	115	1235870.00	A	19360.00	1.57	Fail
95	Mo	2	115	210659.70	P	2732.00	1.30	Fail
107	Ag	2	115	551580.50	P	10460.00	1.90	Fail
111	Cd	2	115	117569.70	P	2118.00	1.80	Fail
115	In	2	---	7231429.00	A	105800.00	1.46	
118	Sn	2	115	314553.91	P	5363.00	1.71	Fail
121	Sb	2	115	369819.19	P	6133.00	1.66	Fail
137	Ba	2	115	143935.50	P	2716.00	1.89	Fail
205	Tl	2	209	810074.38	P	14910.00	1.84	Fail
208	Pb	2	209	1102986.00	P	19000.00	1.72	Fail
209	Bi	2	---	5066186.00	A	31410.00	0.62	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-39450.97	2.15	76.78	-51384.5	70 - 120	ISFail
45	Sc	1	160100.36	0.49	158070.19	101.3	70 - 120	
45	Sc	2	6261294.50	1.76	6406944.50	97.7	70 - 120	
72	Ge	1	88032.41	0.74	88651.82	99.3	70 - 120	
115	In	2	7231429.00	1.46	7384352.50	97.9	70 - 120	
209	Bi	2	5066186.00	0.62	5202967.00	97.4	70 - 120	

Calibration Standard QC Report

Acq. Method: DHL_3Fe.M Sample Name: 2X-160809
Operator: KL Instrument: ICPMS3
Date Acquired: Aug 9 2016 12:49 pm
Last Cal. Update: Aug 09 2016 12:47 pm

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)	Flag
6	Li	2	---	-92547.78	P	610.90	0.66	ISFail
7	Li	2	45	2055320.00	A	6991.00	0.34	Fail
9	Be	2	45	683394.69	A	4914.00	0.72	Fail
11	B	2	45	576713.50	P	2557.00	0.44	Fail
23	Na	1	45	1404880.00	A	14730.00	1.05	Fail
24	Mg	1	45	578383.88	P	6434.00	1.11	
27	Al	1	45	134799.70	P	2720.00	2.02	Fail
39	K	1	45	285831.19	P	781.30	0.27	Fail
44	Ca	2	45	1412857.00	A	25870.00	1.83	Fail
45	Sc	1	---	155861.80	P	491.20	0.32	
45	Sc	2	---	6152547.00	A	97850.00	1.59	
47	Ti	1	45	5794.77	P	204.00	3.52	
51	V	1	45	240871.30	P	1410.00	0.59	
51	V	2	---		A			
52	Cr	1	45	329345.00	P	2941.00	0.89	
55	Mn	1	45	125528.70	P	257.30	0.20	
56	Fe	1	72	4881959.00	A	31120.00	0.64	
59	Co	1	72	583012.50	P	6102.00	1.05	
60	Ni	1	72	171085.50	P	356.40	0.21	
60	Ni	2	---		P			
63	Cu	1	72	471235.19	P	1321.00	0.28	
63	Cu	2	---		A			
66	Zn	1	72	46169.71	P	361.90	0.78	
66	Zn	2	---		P			
72	Ge	1	---	85858.36	P	473.70	0.55	
72	Ge	2	---		A			
75	As	1	72	25145.85	P	42.53	0.17	Fail
78	Se	1	72	1414.53	P	7.55	0.53	Fail
88	Sr	2	115	2920739.00	A	29390.00	1.01	Fail
95	Mo	2	115	513910.31	P	6728.00	1.31	Fail
107	Ag	2	115	1360042.00	A	20930.00	1.54	Fail
111	Cd	2	115	282658.91	P	4566.00	1.62	Fail
115	In	2	---	6950477.00	A	79190.00	1.14	
118	Sn	2	115	763250.19	P	7455.00	0.98	Fail
121	Sb	2	115	897868.50	P	9308.00	1.04	Fail
137	Ba	2	115	350302.50	P	4136.00	1.18	Fail
205	Tl	2	209	2058289.00	A	35310.00	1.72	Fail
208	Pb	2	209	2754049.00	A	37450.00	1.36	Fail
209	Bi	2	---	4942278.00	A	58580.00	1.19	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-92547.78	0.66	76.78	-120542.6	70 - 120	ISFail
45	Sc	1	155861.84	0.32	158070.19	98.6	70 - 120	
45	Sc	2	6152547.50	1.59	6406944.50	96.0	70 - 120	
72	Ge	1	85858.37	0.55	88651.82	96.8	70 - 120	
115	In	2	6950477.50	1.14	7384352.50	94.1	70 - 120	
209	Bi	2	4942278.00	1.19	5202967.00	95.0	70 - 120	

Calibration Standard QC Report

Acq. Method: DHL_3Fe.M Sample Name: H-160809
Operator: KL Instrument: ICPMS3
Date Acquired: Aug 9 2016 12:55 pm
Last Cal. Update: Aug 09 2016 12:52 pm

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)	Flag
6	Li	2	---	-180102.91	P	1887.00	1.05	ISFail
7	Li	2	45	4028771.00	A	21070.00	0.52	Fail
9	Be	2	45	1346636.00	A	10300.00	0.76	Fail
11	B	2	45	1147521.00	A	18600.00	1.62	Fail
23	Na	1	45	2697100.00	A	7631.00	0.28	Fail
24	Mg	1	45	1199446.00	A	15020.00	1.25	
27	Al	1	45	266288.00	P	2957.00	1.11	
39	K	1	45	557212.69	P	4537.00	0.81	Fail
44	Ca	2	45	2670122.00	A	39330.00	1.47	Fail
45	Sc	1	---	154804.91	P	798.80	0.52	
45	Sc	2	---	6027486.00	A	99200.00	1.65	
47	Ti	1	45	11449.88	P	127.40	1.11	
51	V	1	45	474757.91	P	2110.00	0.44	
51	V	2	---		A			
52	Cr	1	45	648571.81	P	1651.00	0.25	
55	Mn	1	45	245434.30	P	883.90	0.36	
56	Fe	1	72	9536205.00	A	79560.00	0.83	
59	Co	1	72	1171404.00	A	11090.00	0.95	
60	Ni	1	72	329269.00	P	3471.00	1.05	
60	Ni	2	---		A			
63	Cu	1	72	927079.50	M	19060.00	2.06	
63	Cu	2	---		A			
66	Zn	1	72	88347.85	P	460.10	0.52	
66	Zn	2	---		P			
72	Ge	1	---	83956.57	P	181.70	0.22	
72	Ge	2	---		A			
75	As	1	72	48699.76	P	116.50	0.24	
78	Se	1	72	2737.60	P	10.85	0.40	
88	Sr	2	115	5612955.00	A	56370.00	1.00	Fail
95	Mo	2	115	1058171.00	A	4867.00	0.46	Fail
107	Ag	2	115	2596907.00	A	2732.00	0.11	Fail
111	Cd	2	115	549297.31	P	1150.00	0.21	Fail
115	In	2	---	6804297.00	A	14860.00	0.22	
118	Sn	2	115	1534882.00	A	13500.00	0.88	Fail
121	Sb	2	115	1803670.00	A	10380.00	0.58	Fail
137	Ba	2	115	687678.69	P	2013.00	0.29	Fail
205	Tl	2	209	4003026.00	A	37020.00	0.92	Fail
208	Pb	2	209	5483501.00	A	9428.00	0.17	Fail
209	Bi	2	---	4848076.00	A	33810.00	0.70	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-180102.91	1.05	76.78	-234582.3	70 - 120	ISFail
45	Sc	1	154804.94	0.52	158070.19	97.9	70 - 120	
45	Sc	2	6027486.00	1.65	6406944.50	94.1	70 - 120	
72	Ge	1	83956.57	0.22	88651.82	94.7	70 - 120	
115	In	2	6804297.50	0.22	7384352.50	92.1	70 - 120	
209	Bi	2	4848076.00	0.70	5202967.00	93.2	70 - 120	

Calibration Standard QC Report

Acq. Method: DHL_3Fe.M Sample Name: H2-160809
Operator: KL Instrument: ICPMS3
Date Acquired: Aug 9 2016 01:01 pm
Last Cal. Update: Aug 09 2016 12:58 pm

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)	Flag
6	Li	2	---	-695108.38	A	5548.00	0.80	ISFail
7	Li	2	45	16324680.00	A	45420.00	0.28	Fail
9	Be	2	45	5098597.00	A	45540.00	0.89	
11	B	2	45	4479131.00	A	27290.00	0.61	Fail
23	Na	1	45	6521873.00	A	60180.00	0.92	Fail
24	Mg	1	45	2874443.00	A	42430.00	1.48	
27	Al	1	45	2506.51	P	21.68	0.86	Fail
39	K	1	45	1451327.00	A	7604.00	0.52	Fail
44	Ca	2	45	6641747.00	A	83680.00	1.26	Fail
45	Sc	1	---	157244.80	P	431.30	0.27	
45	Sc	2	---	6089865.00	A	74730.00	1.23	
47	Ti	1	45	47519.80	P	854.10	1.80	
51	V	1	45	1959345.00	A	19960.00	1.02	
51	V	2	---		A			
52	Cr	1	45	2623501.00	A	40880.00	1.56	
55	Mn	1	45	1023403.00	A	19900.00	1.94	
56	Fe	1	72	16818.04	P	566.10	3.37	Fail
59	Co	1	72	4471216.00	A	68540.00	1.53	
60	Ni	1	72	1335689.00	A	16620.00	1.24	
60	Ni	2	---		A			
63	Cu	1	72	3573923.00	A	51580.00	1.44	
63	Cu	2	---		A			
66	Zn	1	72	344616.81	P	3985.00	1.16	
66	Zn	2	---		A			
72	Ge	1	---	85259.96	P	597.60	0.70	
72	Ge	2	---		A			
75	As	1	72	195626.80	P	2133.00	1.09	
78	Se	1	72	10908.70	P	95.50	0.88	
88	Sr	2	115	23456990.00	A	236000.00	1.01	Fail
95	Mo	2	115	4277989.00	A	26110.00	0.61	
107	Ag	2	115	1475.72	P	191.00	12.94	Fail
111	Cd	2	115	2274770.00	A	16520.00	0.73	
115	In	2	---	6927955.00	A	9047.00	0.13	
118	Sn	2	115	6163197.00	A	4526.00	0.07	Fail
121	Sb	2	115	2224.75	P	132.90	5.97	Fail
137	Ba	2	115	2890665.00	A	29900.00	1.03	Fail
205	Tl	2	209	15777200.00	A	100800.00	0.64	
208	Pb	2	209	21376310.00	A	153600.00	0.72	
209	Bi	2	---	4818865.00	A	41690.00	0.87	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-695108.44	0.80	76.78	-905371.9	70 - 120	ISFail
45	Sc	1	157244.86	0.27	158070.19	99.5	70 - 120	
45	Sc	2	6089865.50	1.23	6406944.50	95.1	70 - 120	
72	Ge	1	85259.96	0.70	88651.82	96.2	70 - 120	
115	In	2	6927955.50	0.13	7384352.50	93.8	70 - 120	
209	Bi	2	4818864.50	0.87	5202967.00	92.6	70 - 120	

ICSA QC Report

C:\ICPCHEM\1\DATA\16H09l01.B\016ICSA.D\016ICSA.D#

Date Acquired:	Aug 9 2016 01:18 pm	Sample Name:	**ICSA-160809**
Acq. Method:	DHL_3Fe.M	Misc Info:	ICSAICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 09 2016 01:04 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	RL S	RL Aq	Flag
7	Li	2	45	0.478	ppb	9.59	8.00	5.00	
9	Be	2	45	0.117	ppb	38.20	0.32	0.80	
11	B	2	45	8.638	ppb	3.46	30.00	30.00	
23	Na	1	45	101700.000	ppb	1.19	#######	#######	
24	Mg	1	45	89070.000	ppb	1.04	#######	#######	
27	Al	1	45	96290.000	ppb	0.44	#######	#######	
39	K	1	45	92830.000	ppb	0.95	#######	#######	
44	Ca	2	45	90970.000	ppb	2.83	#######	#######	
47	Ti	1	45	1967.000	ppb	0.21	10.00	10.00	
51	V	1	45	0.109	ppb	13.43	10.00	10.00	
52	Cr	1	45	0.894	ppb	4.88	8.00	5.00	
55	Mn	1	45	0.844	ppb	9.88	8.00	10.00	
56	Fe	1	72	92080.000	ppb	1.45	#######	#######	
59	Co	1	72	1.329	ppb	5.32	8.00	10.00	
60	Ni	1	72	0.485	ppb	11.46	8.00	10.00	
63	Cu	1	72	2.282	ppb	0.83	8.00	10.00	
66	Zn	1	72	2.100	ppb	1.97	10.00	5.00	
75	As	1	72	0.765	ppb	2.73	4.00	5.00	
78	Se	1	72	0.590	ppb	13.84	2.00	5.00	
88	Sr	2	115	1.237	ppb	5.49	10.00	10.00	
95	Mo	2	115	1909.000	ppb	2.87	8.00	5.00	
107	Ag	2	115	0.099	ppb	14.31	0.80	2.00	
111	Cd	2	115	0.197	ppb	22.45	1.20	1.00	
118	Sn	2	115	0.592	ppb	9.39	10.00	10.00	
121	Sb	2	115	0.145	ppb	7.64	4.00	2.50	
137	Ba	2	115	0.539	ppb	12.33	8.00	10.00	
205	Tl	2	209	0.265	ppb	18.78	4.00	1.50	
208	Pb	2	209	0.424	ppb	8.56	1.20	1.00	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	11.48	362.20	76.78	15.0	70 - 120	ISFail
45	Sc	1	148376.02	0.59	158070.19	93.9	70 - 120	
45	Sc	2	6156980.50	1.85	6406944.50	96.1	70 - 120	
72	Ge	1	80882.91	0.84	88651.82	91.2	70 - 120	
115	In	2	6870784.00	2.23	7384352.50	93.0	70 - 120	
209	Bi	2	4330707.50	1.99	5202967.00	83.2	70 - 120	

ICS-AB QC Report

C:\ICPCHEM\1\DATA\16H09l01.B\017ICSB.D\017ICSB.D#

Date Acquired:	Aug 9 2016 01:24 pm	Sample Name:	**ICSAB-160809**
Acq. Method:	DHL_3Fe.M	Misc Info:	ICSBICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 09 2016 01:04 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)			Flag
7	Li	2	45	0.40	ppb	2.58	---	80 -		120	
9	Be	2	45	0.03	ppb	8.03	---	80 -		120	
11	B	2	45	6.35	ppb	1.20	---	80 -		120	
23	Na	1	45	96960.00	ppb	0.63	100000.00	80 -		120	
24	Mg	1	45	90120.00	ppb	1.11	100000.00	80 -		120	
27	Al	1	45	93870.00	ppb	0.65	100000.00	80 -		120	
39	K	1	45	91490.00	ppb	0.58	100000.00	80 -		120	
44	Ca	2	45	91530.00	ppb	3.21	100000.00	80 -		120	
47	Ti	1	45	1935.00	ppb	1.62	---	80 -		120	
51	V	1	45	39.09	ppb	0.68	40.00	80 -		120	
52	Cr	1	45	20.74	ppb	1.41	20.00	80 -		120	
55	Mn	1	45	18.98	ppb	0.93	20.00	80 -		120	
56	Fe	1	72	92210.00	ppb	0.80	100000.00	80 -		120	
59	Co	1	72	39.88	ppb	0.42	40.00	80 -		120	
60	Ni	1	72	36.63	ppb	1.39	40.00	80 -		120	
63	Cu	1	72	20.22	ppb	0.75	20.00	80 -		120	
66	Zn	1	72	19.71	ppb	2.04	20.00	80 -		120	
75	As	1	72	19.81	ppb	0.30	20.00	80 -		120	
78	Se	1	72	18.75	ppb	2.32	20.00	80 -		120	
88	Sr	2	115	1.33	ppb	1.67	---	80 -		120	
95	Mo	2	115	1935.00	ppb	2.13	---	80 -		120	
107	Ag	2	115	17.74	ppb	2.73	20.00	80 -		120	
111	Cd	2	115	9.02	ppb	3.94	10.00	80 -		120	
118	Sn	2	115	0.55	ppb	2.97	---	80 -		120	
121	Sb	2	115	0.07	ppb	4.90	---	80 -		120	
137	Ba	2	115	0.45	ppb	15.68	---	80 -		120	
205	Tl	2	209	0.13	ppb	1.84	---	80 -		120	
208	Pb	2	209	0.35	ppb	3.71	---	80 -		120	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	39.32	24.84	76.78	51.2	70 -		120	ISFail
45	Sc	1	143697.27	0.32	158070.19	90.9	70 -		120	
45	Sc	2	6567728.50	2.23	6406944.50	102.5	70 -		120	
72	Ge	1	79282.91	0.67	88651.82	89.4	70 -		120	
115	In	2	7038518.00	2.36	7384352.50	95.3	70 -		120	
209	Bi	2	4336473.50	1.65	5202967.00	83.3	70 -		120	

CCV QC Report

C:\ICPCHEM\1\DATA\16H09l01.B\020ICV.D\020ICV.D#

Date Acquired:	Aug 9 2016 01:42 pm	Sample Name:	**ICV1-160809**
Acq. Method:	DHL_3Fe.M	Misc Info:	ICV ICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 09 2016 01:04 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	129.30	ppb	1.81	100.00	90 -	110	129.3	Fail
9	Be	2	45	114.40	ppb	1.63	100.00	90 -	110	114.4	Fail
11	B	2	45	109.80	ppb	0.44	100.00	90 -	110	109.8	
23	Na	1	45	2933.00	ppb	0.80	2500.00	90 -	110	117.3	Fail
24	Mg	1	45	2666.00	ppb	0.48	2500.00	90 -	110	106.6	
27	Al	1	45	2371.00	ppb	2.40	2500.00	90 -	110	94.8	
39	K	1	45	2496.00	ppb	1.03	2500.00	90 -	110	99.8	
44	Ca	2	45	2519.00	ppb	5.00	2500.00	90 -	110	100.8	
47	Ti	1	45	98.48	ppb	3.15	100.00	90 -	110	98.5	
51	V	1	45	104.90	ppb	0.63	100.00	90 -	110	104.9	
52	Cr	1	45	110.20	ppb	0.50	100.00	90 -	110	110.2	Fail
55	Mn	1	45	97.83	ppb	0.85	100.00	90 -	110	97.8	
56	Fe	1	72	2550.00	ppb	0.86	2500.00	90 -	110	102.0	
59	Co	1	72	106.90	ppb	0.39	100.00	90 -	110	106.9	
60	Ni	1	72	105.20	ppb	0.60	100.00	90 -	110	105.2	
63	Cu	1	72	107.50	ppb	0.85	100.00	90 -	110	107.5	
66	Zn	1	72	103.10	ppb	0.74	100.00	90 -	110	103.1	
75	As	1	72	100.40	ppb	0.56	100.00	90 -	110	100.4	
78	Se	1	72	95.57	ppb	1.19	100.00	90 -	110	95.6	
88	Sr	2	115	112.40	ppb	1.71	100.00	90 -	110	112.4	Fail
95	Mo	2	115	98.76	ppb	1.83	100.00	90 -	110	98.8	
107	Ag	2	115	101.40	ppb	2.11	100.00	90 -	110	101.4	
111	Cd	2	115	98.66	ppb	2.13	100.00	90 -	110	98.7	
118	Sn	2	115	98.42	ppb	1.97	100.00	90 -	110	98.4	
121	Sb	2	115	98.00	ppb	1.85	100.00	90 -	110	98.0	
137	Ba	2	115	95.40	ppb	1.88	100.00	90 -	110	95.4	
205	Tl	2	209	96.22	ppb	1.09	100.00	90 -	110	96.2	
208	Pb	2	209	96.59	ppb	1.93	100.00	90 -	110	96.6	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	-32746.34	1.14	76.78	-42651.8	70 -	120		ISFail
45	Sc	1	151304.55	0.27	158070.19	95.7	70 -	120		
45	Sc	2	7310796.00	1.80	6406944.50	114.1	70 -	120		
72	Ge	1	86412.31	0.52	88651.82	97.5	70 -	120		
115	In	2	7162118.00	1.91	7384352.50	97.0	70 -	120		
209	Bi	2	4628968.50	1.21	5202967.00	89.0	70 -	120		

ICB QC Report

C:\ICPCHEM\1\DATA\16H09l01.B\021_ICB.D\021_ICB.D#

Date Acquired:	Aug 9 2016 01:48 pm	Sample Name:	**ICB1-160809**
Acq. Method:	DHL_3Fe.M	Misc Info:	ICB ICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 09 2016 01:04 pm	Instrument:	ICPMS3

QC Elements

Element				Conc.		RSD(%)	High Limit	Flag
7	Li	2	45	0.29	ppb	7.50	2.00	
9	Be	2	45	0.09	ppb	14.93	0.40	
11	B	2	45	4.74	ppb	3.28	10.00	
23	Na	1	45	11.32	ppb	2.07	50.00	
24	Mg	1	45	4.67	ppb	15.18	50.00	
27	Al	1	45	11.35	ppb	4.40	50.00	Failaq
39	K	1	45	9.77	ppb	1.38	50.00	
44	Ca	2	45	12.78	ppb	4.86	50.00	
47	Ti	1	45	0.21	ppb	52.92	4.00	
51	V	1	45	0.08	ppb	4.76	4.00	
52	Cr	1	45	0.13	ppb	4.27	2.00	
55	Mn	1	45	0.12	ppb	13.64	2.00	
56	Fe	1	72	3.53	ppb	8.32	50.00	
59	Co	1	72	0.09	ppb	13.04	2.00	
60	Ni	1	72	0.07	ppb	10.98	2.00	
63	Cu	1	72	0.14	ppb	8.26	2.00	
66	Zn	1	72	0.24	ppb	9.19	4.00	
75	As	1	72	0.21	ppb	2.42	2.00	
78	Se	1	72	-0.03	ppb	8.18	0.60	
88	Sr	2	115	0.26	ppb	4.89	4.00	
95	Mo	2	115	0.26	ppb	9.18	2.00	
107	Ag	2	115	0.06	ppb	7.48	0.40	
111	Cd	2	115	0.09	ppb	30.52	0.40	
118	Sn	2	115	0.20	ppb	2.23	20.00	
121	Sb	2	115	0.11	ppb	4.20	2.00	
137	Ba	2	115	0.11	ppb	12.13	2.00	
205	Tl	2	209	0.22	ppb	7.79	2.00	
208	Pb	2	209	0.12	ppb	7.88	0.40	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2 RHig	-12.64	######	76.78	-16.5	70 - 120	ISFail
45	Sc	1	154465.72	1.48	158070.19	97.7	70 - 120	
45	Sc	2	7434230.00	2.56	6406944.50	116.0	70 - 120	
72	Ge	1	88798.62	1.36	88651.82	100.2	70 - 120	
115	In	2	7172536.50	2.37	7384352.50	97.1	70 - 120	
209	Bi	2	4672709.00	1.72	5202967.00	89.8	70 - 120	

CCV QC Report

C:\ICPCHEM\1\DATA\16H09l01.B\022LCVL.D\022LCVL.D#

Date Acquired:	Aug 9 2016 01:54 pm	Sample Name:	**ILCVL-160809**
Acq. Method:	DHL_3Fe.M	Misc Info:	LCVLICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 09 2016 01:04 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	13.80	ppb	2.27	10.00	70 -	130	138.0	Fail
9	Be	2	45	1.21	ppb	3.36	1.00	70 -	130	120.5	
11	B	2	45	24.35	ppb	1.79	20.00	70 -	130	121.8	
23	Na	1	45	129.60	ppb	1.83	100.00	70 -	130	129.6	
24	Mg	1	45	109.10	ppb	3.35	100.00	70 -	130	109.1	
27	Al	1	45	99.67	ppb	0.51	100.00	70 -	130	99.7	
39	K	1	45	110.80	ppb	4.64	100.00	70 -	130	110.8	
44	Ca	2	45	95.31	ppb	4.48	100.00	70 -	130	95.3	
47	Ti	1	45	5.34	ppb	2.11	5.00	70 -	130	106.8	
51	V	1	45	1.15	ppb	2.61	1.00	70 -	130	115.0	
52	Cr	1	45	5.66	ppb	1.07	5.00	70 -	130	113.2	
55	Mn	1	45	5.05	ppb	0.65	5.00	70 -	130	101.0	
56	Fe	1	72	108.90	ppb	1.07	100.00	70 -	130	108.9	
59	Co	1	72	5.53	ppb	1.64	5.00	70 -	130	110.6	
60	Ni	1	72	5.46	ppb	4.65	5.00	70 -	130	109.2	
63	Cu	1	72	5.63	ppb	1.11	5.00	70 -	130	112.5	
66	Zn	1	72	5.82	ppb	5.06	5.00	70 -	130	116.4	
75	As	1	72	5.41	ppb	1.94	5.00	70 -	130	108.1	
78	Se	1	72	5.64	ppb	4.93	5.00	70 -	130	112.8	
88	Sr	2	115	5.61	ppb	2.78	5.00	70 -	130	112.1	
95	Mo	2	115	5.26	ppb	2.68	5.00	70 -	130	105.2	
107	Ag	2	115	2.11	ppb	3.20	2.00	70 -	130	105.6	
111	Cd	2	115	1.06	ppb	8.62	1.00	70 -	130	106.1	
118	Sn	2	115	5.13	ppb	1.54	5.00	70 -	130	102.6	
121	Sb	2	115	2.05	ppb	1.64	2.00	70 -	130	102.4	
137	Ba	2	115	4.82	ppb	1.91	5.00	70 -	130	96.4	
205	Tl	2	209	1.09	ppb	2.13	1.00	70 -	130	108.5	
208	Pb	2	209	1.06	ppb	0.80	1.00	70 -	130	106.0	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	-3529.36	3.10	76.78	-4597.0	70 -	120	ISFail
45	Sc	1	155051.92	1.11	158070.19	98.1	70 -	120	
45	Sc	2	7390682.50	2.92	6406944.50	115.4	70 -	120	
72	Ge	1	88977.75	1.41	88651.82	100.4	70 -	120	
115	In	2	7193810.00	1.54	7384352.50	97.4	70 -	120	
209	Bi	2	4621289.00	1.35	5202967.00	88.8	70 -	120	

CCV QC Report

C:\ICPCHEM\1\DATA\16H09l01.B\110CCV1.D\110CCV1.D#

Date Acquired:	Aug 9 2016 10:34 pm	Sample Name:	**CCV5-160809**
Acq. Method:	DHL_3Fe.M	Misc Info:	CCV ICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 09 2016 01:04 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	199.60	ppb	1.70	200.00	90 -	110	99.8	
9	Be	2	45	187.90	ppb	1.75	200.00	90 -	110	94.0	
11	B	2	45	183.10	ppb	2.34	200.00	90 -	110	91.6	
23	Na	1	45	5664.00	ppb	1.50	5000.00	90 -	110	113.3	Fail
24	Mg	1	45	5213.00	ppb	0.36	5000.00	90 -	110	104.3	
27	Al	1	45	4926.00	ppb	0.82	5000.00	90 -	110	98.5	
39	K	1	45	5156.00	ppb	0.14	5000.00	90 -	110	103.1	
44	Ca	2	45	5435.00	ppb	2.25	5000.00	90 -	110	108.7	
47	Ti	1	45	196.60	ppb	1.35	200.00	90 -	110	98.3	
51	V	1	45	205.10	ppb	0.86	200.00	90 -	110	102.6	
52	Cr	1	45	207.80	ppb	1.07	200.00	90 -	110	103.9	
55	Mn	1	45	197.10	ppb	0.56	200.00	90 -	110	98.6	
56	Fe	1	72	5067.00	ppb	0.66	5000.00	90 -	110	101.3	
59	Co	1	72	213.10	ppb	0.57	200.00	90 -	110	106.6	
60	Ni	1	72	210.30	ppb	0.93	200.00	90 -	110	105.2	
63	Cu	1	72	215.20	ppb	0.34	200.00	90 -	110	107.6	
66	Zn	1	72	206.50	ppb	0.33	200.00	90 -	110	103.3	
75	As	1	72	209.00	ppb	0.28	200.00	90 -	110	104.5	
78	Se	1	72	199.60	ppb	0.92	200.00	90 -	110	99.8	
88	Sr	2	115	217.20	ppb	1.12	200.00	90 -	110	108.6	
95	Mo	2	115	195.80	ppb	1.76	200.00	90 -	110	97.9	
107	Ag	2	115	201.30	ppb	3.08	200.00	90 -	110	100.7	
111	Cd	2	115	197.50	ppb	0.70	200.00	90 -	110	98.8	
118	Sn	2	115	196.10	ppb	1.09	200.00	90 -	110	98.1	
121	Sb	2	115	190.60	ppb	1.19	200.00	90 -	110	95.3	
137	Ba	2	115	191.80	ppb	1.26	200.00	90 -	110	95.9	
205	Tl	2	209	208.60	ppb	1.56	200.00	90 -	110	104.3	
208	Pb	2	209	203.40	ppb	1.51	200.00	90 -	110	101.7	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	-75664.59	3.31	76.78	-98552.4	70 -	120		ISFail
45	Sc	1	124785.66	0.45	158070.19	78.9	70 -	120		
45	Sc	2	6302517.50	2.28	6406944.50	98.4	70 -	120		
72	Ge	1	68975.04	0.29	88651.82	77.8	70 -	120		
115	In	2	6306791.00	1.45	7384352.50	85.4	70 -	120		
209	Bi	2	4367557.00	1.66	5202967.00	83.9	70 -	120		

CCV QC Report

C:\ICPCHEM\1\DATA\16H09l01.B\112LCVL.D\112LCVL.D#

Date Acquired:	Aug 9 2016 10:45 pm	Sample Name:	**LCVL5-160809**
Acq. Method:	DHL_3Fe.M	Misc Info:	LCVLICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 09 2016 01:04 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	9.98	ppb	1.41	10.00	70 -	130	99.8	
9	Be	2	45	0.98	ppb	5.81	1.00	70 -	130	97.8	
11	B	2	45	19.45	ppb	2.92	20.00	70 -	130	97.3	
23	Na	1	45	84.87	ppb	0.87	100.00	70 -	130	84.9	
24	Mg	1	45	105.80	ppb	2.40	100.00	70 -	130	105.8	
27	Al	1	45	107.10	ppb	2.86	100.00	70 -	130	107.1	
39	K	1	45	104.40	ppb	1.08	100.00	70 -	130	104.4	
44	Ca	2	45	104.20	ppb	5.11	100.00	70 -	130	104.2	
47	Ti	1	45	5.37	ppb	10.81	5.00	70 -	130	107.4	
51	V	1	45	1.18	ppb	3.25	1.00	70 -	130	118.0	
52	Cr	1	45	5.30	ppb	1.79	5.00	70 -	130	106.0	
55	Mn	1	45	5.07	ppb	3.86	5.00	70 -	130	101.5	
56	Fe	1	72	112.20	ppb	1.84	100.00	70 -	130	112.2	
59	Co	1	72	5.31	ppb	1.44	5.00	70 -	130	106.3	
60	Ni	1	72	5.38	ppb	1.03	5.00	70 -	130	107.6	
63	Cu	1	72	5.42	ppb	1.93	5.00	70 -	130	108.4	
66	Zn	1	72	5.16	ppb	2.52	5.00	70 -	130	103.2	
75	As	1	72	5.39	ppb	0.72	5.00	70 -	130	107.7	
78	Se	1	72	5.61	ppb	6.00	5.00	70 -	130	112.3	
88	Sr	2	115	5.30	ppb	3.19	5.00	70 -	130	106.0	
95	Mo	2	115	4.85	ppb	3.25	5.00	70 -	130	97.1	
107	Ag	2	115	2.06	ppb	3.77	2.00	70 -	130	102.9	
111	Cd	2	115	0.99	ppb	10.34	1.00	70 -	130	98.7	
118	Sn	2	115	5.09	ppb	3.09	5.00	70 -	130	101.9	
121	Sb	2	115	1.94	ppb	3.14	2.00	70 -	130	96.8	
137	Ba	2	115	4.99	ppb	1.12	5.00	70 -	130	99.8	
205	Tl	2	209	1.11	ppb	2.10	1.00	70 -	130	111.2	
208	Pb	2	209	1.07	ppb	1.69	1.00	70 -	130	106.9	

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	RHigh	-2404.03	9.12	76.78	-3131.2	70 -	120	ISFail
45	Sc	1		128353.91	1.92	158070.19	81.2	70 -	120	
45	Sc	2		6258815.50	2.46	6406944.50	97.7	70 -	120	
72	Ge	1		71743.65	1.57	88651.82	80.9	70 -	120	
115	In	2		6551750.50	1.40	7384352.50	88.7	70 -	120	
209	Bi	2		4522111.00	0.97	5202967.00	86.9	70 -	120	

CCB QC Report

C:\ICPCHEM\1\DATA\16H09l01.B\113_CCB.D\113_CCB.D#

Date Acquired:	Aug 9 2016 10:51 pm	Sample Name:	**CCB5-160809**
Acq. Method:	DHL_3Fe.M	Misc Info:	CCB ICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 09 2016 01:04 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	MDL S	MDL Aq	Flag
7	Li	2	45	0.149	ppb	3.32	2.00	2.00	
9	Be	2	45	0.022	ppb	25.44	0.40	0.30	
11	B	2	45	1.737	ppb	3.08	10.00	10.00	
23	Na	1	45	-17.590	ppb	1.87	50.00	#####	
24	Mg	1	45	2.279	ppb	10.45	50.00	#####	
27	Al	1	45	13.230	ppb	7.09	50.00	10.00	FailAq
39	K	1	45	4.012	ppb	5.52	50.00	#####	
44	Ca	2	45	18.890	ppb	4.87	50.00	#####	
47	Ti	1	45	0.106	ppb	21.65	4.00	3.00	
51	V	1	45	0.021	ppb	11.72	4.00	3.00	
52	Cr	1	45	-0.001	ppb	13.25	2.00	2.00	
55	Mn	1	45	0.126	ppb	16.10	2.00	3.00	
56	Fe	1	72	4.464	ppb	16.01	50.00	30.00	
59	Co	1	72	0.028	ppb	8.22	2.00	3.00	
60	Ni	1	72	0.123	ppb	8.50	2.00	3.00	
63	Cu	1	72	0.069	ppb	13.63	2.00	2.00	
66	Zn	1	72	1.030	ppb	10.51	4.00	2.00	
75	As	1	72	0.068	ppb	3.47	2.00	2.00	
78	Se	1	72	0.168	ppb	15.60	0.60	2.00	
88	Sr	2	115	0.179	ppb	2.97	4.00	3.00	
95	Mo	2	115	0.045	ppb	7.02	2.00	2.00	
107	Ag	2	115	0.031	ppb	8.69	0.40	1.00	
111	Cd	2	115	0.020	ppb	14.59	0.40	0.30	
118	Sn	2	115	0.081	ppb	10.28	20.00	3.00	
121	Sb	2	115	0.036	ppb	14.80	2.00	0.80	
137	Ba	2	115	0.140	ppb	6.72	2.00	3.00	
205	Tl	2	209	0.062	ppb	3.96	2.00	0.50	
208	Pb	2	209	0.037	ppb	7.76	0.40	0.30	

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	RHigh	-49.93	23.51	76.78	-65.0	70 - 120	ISFail
45	Sc	1		130748.68	1.01	158070.19	82.7	70 - 120	
45	Sc	2		6263012.50	1.31	6406944.50	97.8	70 - 120	
72	Ge	1		72650.02	0.98	88651.82	81.9	70 - 120	
115	In	2		6516653.50	0.83	7384352.50	88.2	70 - 120	
209	Bi	2		4580867.00	0.91	5202967.00	88.0	70 - 120	

PB QC Report

C:\ICPCHEM\1\DATA\16H09l01.B\114__PB.D\114__PB.D#

76687

Date Acquired:	Aug 9 2016 10:57 pm	Sample Name:	MB-~~76663~~
Acq. Method:	DHL_3Fe.M	Misc Info:	MBLKICPMS_TWDOD
Operator:	KL	Bench Diln:	1.00
Last Cal. Update:	Aug 09 2016 01:04 pm	Auto Dil:	Undiluted
Instrument:	ICPMS3	Total Dil:	1.00

QC Elements

Element				Conc.		RSD(%)	MDL	RL	Flag
7	Li	2	45	0.116	ppb	3.19	2.0	5.00	
9	Be	2	45	-0.003	ppb	25.51	0.3	1.00	
11	B	2	45	1.221	ppb	2.79	10.0	30.00	
23	Na	1	45	-31.450	ppb	1.22	100.0	#####	
24	Mg	1	45	2.236	ppb	4.79	100.0	#####	
27	Al	1	45	2.962	ppb	5.20	10.0	30.00	
39	K	1	45	-6.666	ppb	1.69	100.0	#####	
44	Ca	2	45	19.140	ppb	5.33	100.0	#####	
47	Ti	1	45	0.063	ppb	49.99	3.0	10.00	
51	V	1	45	0.025	ppb	14.30	3.0	10.00	
52	Cr	1	45	-0.054	ppb	11.71	2.0	5.00	
55	Mn	1	45	0.051	ppb	11.45	3.0	10.00	
56	Fe	1	72	3.046	ppb	8.16	30.0	#####	
59	Co	1	72	-0.003	ppb	25.24	3.0	10.00	
60	Ni	1	72	-0.025	ppb	33.75	3.0	10.00	
63	Cu	1	72	0.015	ppb	3.83	2.0	10.00	
66	Zn	1	72	0.075	ppb	14.94	2.0	5.00	
75	As	1	72	-0.021	ppb	5.48	2.0	5.00	
78	Se	1	72	0.006	ppb	11.09	2.0	5.00	
88	Sr	2	115	0.061	ppb	4.52	3.0	10.00	
95	Mo	2	115	0.002	ppb	6.25	2.0	5.00	
107	Ag	2	115	0.009	ppb	18.42	1.0	2.00	
111	Cd	2	115	-0.005	ppb	35.37	0.3	1.00	
118	Sn	2	115	0.036	ppb	17.01	3.0	10.00	
121	Sb	2	115	0.014	ppb	16.13	0.8	2.50	
137	Ba	2	115	0.036	ppb	29.09	3.0	10.00	
205	Tl	2	209	0.034	ppb	5.09	0.5	1.50	
208	Pb	2	209	0.019	ppb	2.08	0.3	1.00	

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	RHig	-32.23	21.44	76.78	-42.0	70 - 120	ISFail
45	Sc	1		128496.87	0.88	158070.19	81.3	70 - 120	
45	Sc	2		6286610.50	2.57	6406944.50	98.1	70 - 120	
72	Ge	1		71501.47	1.37	88651.82	80.7	70 - 120	
115	In	2		6715174.00	1.12	7384352.50	90.9	70 - 120	
209	Bi	2		4679310.50	1.15	5202967.00	89.9	70 - 120	

LCS QC Report

C:\ICPCHEM\1\DATA\16H09l01.B\115_LCS.D\115_LCS.D#

76687

Date Acquired:	Aug 9 2016 11:03 pm	Sample Name:	LCS-~~76663~~
Acq. Method:	DHL_3Fe.M	Misc Info:	LCS ICPMS_TWDOD1
Operator:	KL	Bench Diln:	1.00
Last Cal. Update:	Aug 09 2016 01:04 pm	Auto Dil:	Undiluted
Instrument:	ICPMS3	Total Dil:	1.00

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	191.50	ppb	1.15	200.00	80 -	120	95.8	
9	Be	2	45	182.90	ppb	1.81	200.00	80 -	120	91.5	
11	B	2	45	175.40	ppb	2.15	200.00	80 -	120	87.7	
23	Na	1	45	5311.00	ppb	0.77	5000.00	80 -	120	106.2	
24	Mg	1	45	4913.00	ppb	1.22	5000.00	80 -	120	98.3	
27	Al	1	45	4890.00	ppb	1.43	5000.00	80 -	120	97.8	
39	K	1	45	4927.00	ppb	0.25	5000.00	80 -	120	98.5	
44	Ca	2	45	5070.00	ppb	1.73	5000.00	80 -	120	101.4	
47	Ti	1	45	205.00	ppb	1.82	200.00	80 -	120	102.5	
51	V	1	45	201.20	ppb	0.64	200.00	80 -	120	100.6	
52	Cr	1	45	203.50	ppb	1.03	200.00	80 -	120	101.8	
55	Mn	1	45	194.70	ppb	1.43	200.00	80 -	120	97.4	
56	Fe	1	72	4929.00	ppb	1.41	5000.00	80 -	120	98.6	
59	Co	1	72	206.50	ppb	0.63	200.00	80 -	120	103.3	
60	Ni	1	72	202.80	ppb	1.09	200.00	80 -	120	101.4	
63	Cu	1	72	210.10	ppb	0.11	200.00	80 -	120	105.1	
66	Zn	1	72	205.90	ppb	0.75	200.00	80 -	120	103.0	
75	As	1	72	206.60	ppb	0.27	200.00	80 -	120	103.3	
78	Se	1	72	201.40	ppb	2.05	200.00	80 -	120	100.7	
88	Sr	2	115	214.70	ppb	2.21	200.00	80 -	120	107.4	
95	Mo	2	115	191.20	ppb	1.94	200.00	80 -	120	95.6	
107	Ag	2	115	191.50	ppb	1.83	200.00	80 -	120	95.8	
111	Cd	2	115	196.00	ppb	1.40	200.00	80 -	120	98.0	
118	Sn	2	115	190.50	ppb	1.62	200.00	80 -	120	95.3	
121	Sb	2	115	189.00	ppb	1.43	200.00	80 -	120	94.5	
137	Ba	2	115	191.40	ppb	1.34	200.00	80 -	120	95.7	
205	Tl	2	209	206.20	ppb	1.22	200.00	80 -	120	103.1	
208	Pb	2	209	200.40	ppb	0.49	200.00	80 -	120	100.2	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	-69491.88	0.76	76.78	-90512.5	70 -	120	ISFail
45	Sc	1	124534.90	0.24	158070.19	78.8	70 -	120	
45	Sc	2	5894832.50	2.54	6406944.50	92.0	70 -	120	
72	Ge	1	68815.20	0.39	88651.82	77.6	70 -	120	
115	In	2	6077147.00	1.53	7384352.50	82.3	70 -	120	
209	Bi	2	4346663.50	0.36	5202967.00	83.5	70 -	120	

LCS QC Report

C:\ICPCHEM\1\DATA\16H09l01.B\116_LCS.D\116_LCS.D#

766878

Date Acquired:	Aug 9 2016 11:09 pm	Sample Name:	LCSD-~~766487~~
Acq. Method:	DHL_3Fe.M	Misc Info:	LCSDICPMS_TWDOD1
Operator:	KL	Bench Diln:	1.00
Last Cal. Update:	Aug 09 2016 01:04 pm	Auto Dil:	Undiluted
Instrument:	ICPMS3	Total Dil:	1.00

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	191.20	ppb	2.31	200.00	80 -	120	95.6	
9	Be	2	45	182.50	ppb	1.60	200.00	80 -	120	91.3	
11	B	2	45	181.90	ppb	1.50	200.00	80 -	120	91.0	
23	Na	1	45	5591.00	ppb	1.73	5000.00	80 -	120	111.8	
24	Mg	1	45	5220.00	ppb	1.87	5000.00	80 -	120	104.4	
27	Al	1	45	4960.00	ppb	1.21	5000.00	80 -	120	99.2	
39	K	1	45	5231.00	ppb	1.18	5000.00	80 -	120	104.6	
44	Ca	2	45	5361.00	ppb	1.46	5000.00	80 -	120	107.2	
47	Ti	1	45	201.90	ppb	1.78	200.00	80 -	120	101.0	
51	V	1	45	197.70	ppb	1.43	200.00	80 -	120	98.9	
52	Cr	1	45	200.30	ppb	1.10	200.00	80 -	120	100.2	
55	Mn	1	45	192.80	ppb	1.51	200.00	80 -	120	96.4	
56	Fe	1	72	4923.00	ppb	1.39	5000.00	80 -	120	98.5	
59	Co	1	72	206.40	ppb	0.81	200.00	80 -	120	103.2	
60	Ni	1	72	201.30	ppb	1.07	200.00	80 -	120	100.7	
63	Cu	1	72	207.80	ppb	1.42	200.00	80 -	120	103.9	
66	Zn	1	72	209.40	ppb	0.58	200.00	80 -	120	104.7	
75	As	1	72	206.40	ppb	0.76	200.00	80 -	120	103.2	
78	Se	1	72	204.40	ppb	1.81	200.00	80 -	120	102.2	
88	Sr	2	115	215.10	ppb	1.65	200.00	80 -	120	107.6	
95	Mo	2	115	191.70	ppb	1.74	200.00	80 -	120	95.9	
107	Ag	2	115	187.70	ppb	1.74	200.00	80 -	120	93.9	
111	Cd	2	115	196.00	ppb	1.99	200.00	80 -	120	98.0	
118	Sn	2	115	190.40	ppb	1.09	200.00	80 -	120	95.2	
121	Sb	2	115	183.70	ppb	1.22	200.00	80 -	120	91.9	
137	Ba	2	115	191.30	ppb	1.70	200.00	80 -	120	95.7	
205	Tl	2	209	207.10	ppb	1.32	200.00	80 -	120	103.6	
208	Pb	2	209	201.40	ppb	1.61	200.00	80 -	120	100.7	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	-69421.23	3.58	76.78	-90420.5	70 -	120	ISFail
45	Sc	1	126307.20	0.83	158070.19	79.9	70 -	120	
45	Sc	2	5852857.50	1.30	6406944.50	91.4	70 -	120	
72	Ge	1	68626.96	0.51	88651.82	77.4	70 -	120	
115	In	2	5902131.00	1.44	7384352.50	79.9	70 -	120	
209	Bi	2	4282167.00	0.80	5202967.00	82.3	70 -	120	

Sample QC Report

C:\ICPCHEM\1\DATA\16H09l01.B\118AREF.D\118AREF.D#

Date Acquired:	Aug 9 2016 11:21 pm	Sample Name:	**1607337-26A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TWDOD1
Operator:	KL	Bench Diln:	1
Last Cal. Update:	Aug 09 2016 01:04 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	0.188	ppb	#REF!	3.80	2000.00	ND
9	Be	2	45	0.035	ppb	#REF!	11.60	2000.00	ND
11	B	2	45	16.540	ppb	#REF!	2.55	2000.00	J
23	Na	1	45	131.000	ppb	#REF!	1.16	25000.00	>RL
24	Mg	1	45	22.090	ppb	#REF!	8.44	25000.00	ND
27	Al	1	45	9.234	ppb	#REF!	9.56	10000.00	ND
39	K	1	45	8.686	ppb	#REF!	0.99	25000.00	ND
44	Ca	2	45	69.330	ppb	#REF!	4.98	25000.00	>RL
47	Ti	1	45	0.090	ppb	#REF!	24.74	2000.00	ND
51	V	1	45	0.050	ppb	#REF!	8.99	2000.00	ND
52	Cr	1	45	0.030	ppb	#REF!	12.13	2000.00	ND
55	Mn	1	45	0.093	ppb	#REF!	15.33	2000.00	ND
56	Fe	1	72	3.841	ppb	#REF!	16.35	10000.00	ND
59	Co	1	72	0.043	ppb	#REF!	34.33	2000.00	ND
60	Ni	1	72	0.055	ppb	#REF!	29.18	2000.00	ND
63	Cu	1	72	0.480	ppb	#REF!	0.91	2000.00	ND
66	Zn	1	72	0.701	ppb	#REF!	6.11	2000.00	ND
75	As	1	72	0.035	ppb	#REF!	1.61	2000.00	ND
78	Se	1	72	0.111	ppb	#REF!	40.29	2000.00	ND
88	Sr	2	115	1.232	ppb	#REF!	3.43	2000.00	ND
95	Mo	2	115	0.101	ppb	#REF!	10.97	2000.00	ND
107	Ag	2	115	0.038	ppb	#REF!	10.72	500.00	ND
111	Cd	2	115	0.038	ppb	#REF!	29.46	2000.00	ND
118	Sn	2	115	0.138	ppb	#REF!	1.52	2000.00	ND
121	Sb	2	115	0.125	ppb	#REF!	9.58	500.00	ND
137	Ba	2	115	0.150	ppb	#REF!	21.98	2000.00	ND
205	Tl	2	209	0.203	ppb	#REF!	4.86	2000.00	ND
208	Pb	2	209	0.064	ppb	#REF!	6.02	2000.00	ND

ISTD Elements

Element			CPS Mean	RSD(%)		Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-42.54	17.75	RHigh	76.78	-55.4	70 - 120	ISFail
45	Sc	1	125377.46	1.69		158070.19	79.3	70 - 120	
45	Sc	2	5866874.50	3.02		6406944.50	91.6	70 - 120	
72	Ge	1	69297.77	1.31		88651.82	78.2	70 - 120	
115	In	2	6240223.50	1.23		7384352.50	84.5	70 - 120	
209	Bi	2	4496823.50	1.49		5202967.00	86.4	70 - 120	

DT QC Report

C:\ICPCHEM\1\DATA\16H09l01.B\119DT1.D\119DT1.D#

Date Acquired:	Aug 9 2016 11:27 pm	Sample Name:	**1607337-26A SD**
Acq. Method:	DHL_3Fe.M	Misc Info:	SD ICPMS_TWDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	Aug 09 2016 01:04 pm	Auto Diln:	Undiluted
Instrument:	ICPMS3	Total Diln:	5.00

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)	Rec(%)	Flag
7	Li	2	45	0.02	ppb	3.26	-19.32	90 - 110	-0.6	
9	Be	2	45	-0.01	ppb	34.80	0.04	90 - 110	-188.5	
11	B	2	45	0.43	ppb	1.01	16.54	90 - 110	13.1	
23	Na	1	45	-51.29	ppb	1.59	131.00	90 - 110	-195.8	
24	Mg	1	45	-2.32	ppb	32.10	22.09	90 - 110	-52.4	
27	Al	1	45	-3.78	ppb	20.30	9.23	90 - 110	-204.5	
39	K	1	45	-42.82	ppb	2.32	8.69	90 - 110	######	
44	Ca	2	45	-29.56	ppb	2.42	69.33	90 - 110	-213.2	
47	Ti	1	45	0.03	ppb	24.74	0.09	90 - 110	141.6	
51	V	1	45	-0.16	ppb	3.90	0.05	90 - 110	######	
52	Cr	1	45	-0.11	ppb	21.60	0.03	90 - 110	######	
55	Mn	1	45	-0.07	ppb	61.76	0.09	90 - 110	-392.7	
56	Fe	1	72	-4.42	ppb	34.47	3.84	90 - 110	-574.7	
59	Co	1	72	-0.01	ppb	47.09	0.04	90 - 110	-98.8	
60	Ni	1	72	-0.06	ppb	16.54	0.05	90 - 110	-548.8	
63	Cu	1	72	-0.09	ppb	28.00	0.48	90 - 110	-90.8	
66	Zn	1	72	-0.25	ppb	32.97	0.70	90 - 110	-179.8	
75	As	1	72	-0.28	ppb	5.35	0.04	90 - 110	######	
78	Se	1	72	-0.28	ppb	30.99	0.11	90 - 110	######	
88	Sr	2	115	-0.06	ppb	7.29	1.23	90 - 110	-25.0	
95	Mo	2	115	0.00	ppb	16.95	0.10	90 - 110	-7.6	
107	Ag	2	115	0.00	ppb	12.48	0.04	90 - 110	21.3	
111	Cd	2	115	-0.01	ppb	16.29	0.04	90 - 110	-148.7	
118	Sn	2	115	0.00	ppb	8.48	0.14	90 - 110	6.9	
121	Sb	2	115	0.00	ppb	39.28	0.12	90 - 110	-6.2	
137	Ba	2	115	-0.03	ppb	31.39	0.15	90 - 110	-96.8	
205	Tl	2	209	-0.01	ppb	21.76	0.20	90 - 110	-13.8	
208	Pb	2	209	-0.02	ppb	10.64	0.06	90 - 110	-190.1	

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	RHig	-19.32	121.61	76.78	-25.2	70 -	120	ISFail
45	Sc	1		205868.92	1.08	158070.19	130.2	70 -	120	ISFail
45	Sc	2		9292643.00	0.62	6406944.50	145.0	70 -	120	ISFail
72	Ge	1		113752.76	1.31	88651.82	128.3	70 -	120	ISFail
115	In	2		10011364.00	0.59	7384352.50	135.6	70 -	120	ISFail
209	Bi	2		7018410.50	0.44	5202967.00	134.9	70 -	120	ISFail

DNR

PDS QC Report

C:\ICPCHEM\1\DATA\16H09l01.B\130_PDS.D\130_PDS.D#

Date Acquired:	Aug 10 2016 12:34 am	Sample Name:	**1607337-26A PDS**
Acq. Method:	DHL_3Fe.M	Misc Info:	PDS ICPMS_TWDOD1
Operator:	KL	Bench Diln:	1.00
Last Cal. Update:	Aug 09 2016 01:04 pm	Auto Diln:	Undiluted
Instrument:	ICPMS3	Total Diln:	1.00

QC Elements

Element				Conc.		RSD(%)	Ref Conc	Spike	Range	Rec(%)	Flag
7	Li	2	45	158.80	ppb	1.14	-36628.96	200	75-125	######	Fail
9	Be	2	45	163.50	ppb	1.31	0.04	200	75-125	81.7	
11	B	2	45	172.10	ppb	1.02	16.54	200	75-125	77.8	
23	Na	1	45	5485.00	ppb	0.79	131.00	5000	75-125	107.1	
24	Mg	1	45	5002.00	ppb	0.39	22.09	5000	75-125	99.6	
27	Al	1	45	4968.00	ppb	1.14	9.23	5000	75-125	99.2	
39	K	1	45	5000.00	ppb	0.39	8.69	5000	75-125	99.8	
44	Ca	2	45	5075.00	ppb	2.92	69.33	5000	75-125	100.1	
47	Ti	1	45	194.80	ppb	1.20	0.09	200	75-125	97.4	
51	V	1	45	195.00	ppb	0.28	0.05	200	75-125	97.5	
52	Cr	1	45	198.80	ppb	0.36	0.03	200	75-125	99.4	
55	Mn	1	45	190.20	ppb	0.66	0.09	200	75-125	95.1	
56	Fe	1	72	4874.00	ppb	0.71	3.84	5000	75-125	97.4	
59	Co	1	72	200.20	ppb	0.29	0.04	200	75-125	100.1	
60	Ni	1	72	194.10	ppb	0.24	0.05	200	75-125	97.0	
63	Cu	1	72	196.80	ppb	0.03	0.48	200	75-125	98.2	
66	Zn	1	72	197.30	ppb	0.51	0.70	200	75-125	98.3	
75	As	1	72	196.00	ppb	0.53	0.04	200	75-125	98.0	
78	Se	1	72	192.40	ppb	1.58	0.11	200	75-125	96.1	
88	Sr	2	115	200.30	ppb	1.60	1.23	200	75-125	99.5	
95	Mo	2	115	177.70	ppb	1.78	0.10	200	75-125	88.8	
107	Ag	2	115	191.70	ppb	1.20	0.04	200	75-125	95.8	
111	Cd	2	115	184.10	ppb	1.39	0.04	200	75-125	92.0	
118	Sn	2	115	191.90	ppb	1.65	0.14	200	75-125	95.9	
121	Sb	2	115	181.40	ppb	1.54	0.12	200	75-125	90.6	
137	Ba	2	115	187.90	ppb	1.31	0.15	200	75-125	93.9	
205	Tl	2	209	199.10	ppb	1.51	0.20	200	75-125	99.4	
208	Pb	2	209	193.30	ppb	1.60	0.06	200	75-125	96.6	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-36628.96	4.68	76.78	-47708.9	70 - 120	ISFail
45	Sc	1	125599.98	0.73	158070.19	79.5	70 - 120	
45	Sc	2	5386959.00	1.27	6406944.50	84.1	70 - 120	
72	Ge	1	68421.66	0.57	88651.82	77.2	70 - 120	
115	In	2	5853272.50	1.15	7384352.50	79.3	70 - 120	
209	Bi	2	4369750.00	0.72	5202967.00	84.0	70 - 120	

CCV QC Report

C:\ICPCHEM\1\DATA\16H09l01.B\131CCV1.D\131CCV1.D#

Date Acquired:	Aug 10 2016 12:40 am	Sample Name:	**CCV6-160809**
Acq. Method:	DHL_3Fe.M	Misc Info:	CCV ICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 09 2016 01:04 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	167.40	ppb	1.47	200.00	90 -	110	83.7	Fail
9	Be	2	45	171.80	ppb	1.06	200.00	90 -	110	85.9	Fail
11	B	2	45	166.70	ppb	1.71	200.00	90 -	110	83.4	Fail
23	Na	1	45	5465.00	ppb	1.87	5000.00	90 -	110	109.3	
24	Mg	1	45	5136.00	ppb	1.43	5000.00	90 -	110	102.7	
27	Al	1	45	5019.00	ppb	1.02	5000.00	90 -	110	100.4	
39	K	1	45	5195.00	ppb	1.89	5000.00	90 -	110	103.9	
44	Ca	2	45	5317.00	ppb	1.95	5000.00	90 -	110	106.3	
47	Ti	1	45	198.10	ppb	2.78	200.00	90 -	110	99.1	
51	V	1	45	193.60	ppb	0.91	200.00	90 -	110	96.8	
52	Cr	1	45	196.00	ppb	1.20	200.00	90 -	110	98.0	
55	Mn	1	45	193.30	ppb	1.32	200.00	90 -	110	96.7	
56	Fe	1	72	4978.00	ppb	1.21	5000.00	90 -	110	99.6	
59	Co	1	72	203.60	ppb	0.54	200.00	90 -	110	101.8	
60	Ni	1	72	198.10	ppb	1.04	200.00	90 -	110	99.1	
63	Cu	1	72	204.00	ppb	0.67	200.00	90 -	110	102.0	
66	Zn	1	72	204.20	ppb	1.22	200.00	90 -	110	102.1	
75	As	1	72	205.10	ppb	0.48	200.00	90 -	110	102.6	
78	Se	1	72	204.60	ppb	1.97	200.00	90 -	110	102.3	
88	Sr	2	115	204.10	ppb	1.67	200.00	90 -	110	102.1	
95	Mo	2	115	187.90	ppb	1.81	200.00	90 -	110	94.0	
107	Ag	2	115	192.90	ppb	1.47	200.00	90 -	110	96.5	
111	Cd	2	115	192.80	ppb	1.10	200.00	90 -	110	96.4	
118	Sn	2	115	195.80	ppb	1.49	200.00	90 -	110	97.9	
121	Sb	2	115	193.30	ppb	1.05	200.00	90 -	110	96.7	
137	Ba	2	115	191.20	ppb	1.01	200.00	90 -	110	95.6	
205	Tl	2	209	205.90	ppb	0.44	200.00	90 -	110	103.0	
208	Pb	2	209	199.00	ppb	1.90	200.00	90 -	110	99.5	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	-56261.30	1.15	76.78	-73279.8	70 -	120		ISFail
45	Sc	1	124555.60	0.67	158070.19	78.8	70 -	120		
45	Sc	2	5296972.00	1.77	6406944.50	82.7	70 -	120		
72	Ge	1	66748.51	0.64	88651.82	75.3	70 -	120		
115	In	2	5704471.00	0.52	7384352.50	77.3	70 -	120		
209	Bi	2	4283476.00	0.74	5202967.00	82.3	70 -	120		

CCV QC Report

C:\ICPCHEM\1\DATA\16H09l01.B\133LCVL.D\133LCVL.D#

Date Acquired:	Aug 10 2016 12:52 am	Sample Name:	**LCVL6-160809**
Acq. Method:	DHL_3Fe.M	Misc Info:	LCVLICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 09 2016 01:04 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	8.36	ppb	0.41	10.00	70 -	130	83.6	
9	Be	2	45	0.93	ppb	6.23	1.00	70 -	130	92.7	
11	B	2	45	17.97	ppb	1.06	20.00	70 -	130	89.9	
23	Na	1	45	75.06	ppb	1.50	100.00	70 -	130	75.1	
24	Mg	1	45	106.10	ppb	2.21	100.00	70 -	130	106.1	
27	Al	1	45	107.20	ppb	1.50	100.00	70 -	130	107.2	
39	K	1	45	102.50	ppb	3.12	100.00	70 -	130	102.5	
44	Ca	2	45	96.05	ppb	1.13	100.00	70 -	130	96.1	
47	Ti	1	45	5.58	ppb	14.76	5.00	70 -	130	111.6	
51	V	1	45	1.01	ppb	3.86	1.00	70 -	130	100.9	
52	Cr	1	45	4.96	ppb	1.30	5.00	70 -	130	99.3	
55	Mn	1	45	5.15	ppb	2.02	5.00	70 -	130	103.0	
56	Fe	1	72	109.10	ppb	1.44	100.00	70 -	130	109.1	
59	Co	1	72	5.20	ppb	1.89	5.00	70 -	130	104.0	
60	Ni	1	72	5.19	ppb	3.60	5.00	70 -	130	103.9	
63	Cu	1	72	5.26	ppb	2.20	5.00	70 -	130	105.3	
66	Zn	1	72	5.39	ppb	4.12	5.00	70 -	130	107.7	
75	As	1	72	5.14	ppb	2.63	5.00	70 -	130	102.7	
78	Se	1	72	5.64	ppb	7.87	5.00	70 -	130	112.8	
88	Sr	2	115	5.01	ppb	0.98	5.00	70 -	130	100.2	
95	Mo	2	115	4.61	ppb	2.50	5.00	70 -	130	92.2	
107	Ag	2	115	2.02	ppb	1.23	2.00	70 -	130	100.8	
111	Cd	2	115	1.00	ppb	5.18	1.00	70 -	130	99.9	
118	Sn	2	115	5.02	ppb	0.81	5.00	70 -	130	100.5	
121	Sb	2	115	2.06	ppb	0.44	2.00	70 -	130	102.8	
137	Ba	2	115	4.84	ppb	1.77	5.00	70 -	130	96.8	
205	Tl	2	209	1.08	ppb	1.83	1.00	70 -	130	108.1	
208	Pb	2	209	1.04	ppb	3.49	1.00	70 -	130	103.6	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	-1894.92	0.81	76.78	-2468.1	70 -	120	ISFail
45	Sc	1	127512.96	1.28	158070.19	80.7	70 -	120	
45	Sc	2	5345241.50	1.84	6406944.50	83.4	70 -	120	
72	Ge	1	69017.09	0.78	88651.82	77.9	70 -	120	
115	In	2	5931265.50	0.47	7384352.50	80.3	70 -	120	
209	Bi	2	4508333.00	0.53	5202967.00	86.6	70 -	120	

CCB QC Report

C:\ICPCHEM\1\DATA\16H09l01.B\134_CCB.D\134_CCB.D#

Date Acquired:	Aug 10 2016 12:58 am	Sample Name:	**CCB6-160809**
Acq. Method:	DHL_3Fe.M	Misc Info:	CCB ICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 09 2016 01:04 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	MDL S	MDL Aq	Flag
7	Li	2	45	0.101	ppb	14.77	2.00	2.00	
9	Be	2	45	0.018	ppb	16.07	0.40	0.30	
11	B	2	45	1.904	ppb	2.17	10.00	10.00	
23	Na	1	45	-25.190	ppb	1.25	50.00	#####	
24	Mg	1	45	1.985	ppb	7.37	50.00	#####	
27	Al	1	45	12.990	ppb	11.78	50.00	10.00	FailAq
39	K	1	45	2.226	ppb	2.38	50.00	#####	
44	Ca	2	45	14.170	ppb	3.90	50.00	#####	
47	Ti	1	45	0.228	ppb	48.05	4.00	3.00	
51	V	1	45	0.067	ppb	5.49	4.00	3.00	
52	Cr	1	45	-0.014	ppb	11.68	2.00	2.00	
55	Mn	1	45	0.099	ppb	33.22	2.00	3.00	
56	Fe	1	72	2.892	ppb	10.97	50.00	30.00	
59	Co	1	72	0.042	ppb	8.22	2.00	3.00	
60	Ni	1	72	0.107	ppb	18.76	2.00	3.00	
63	Cu	1	72	0.079	ppb	7.94	2.00	2.00	
66	Zn	1	72	0.873	ppb	10.21	4.00	2.00	
75	As	1	72	-0.028	ppb	6.15	2.00	2.00	
78	Se	1	72	0.106	ppb	9.27	0.60	2.00	
88	Sr	2	115	0.136	ppb	7.78	4.00	3.00	
95	Mo	2	115	0.048	ppb	13.97	2.00	2.00	
107	Ag	2	115	0.035	ppb	31.56	0.40	1.00	
111	Cd	2	115	0.016	ppb	17.44	0.40	0.30	
118	Sn	2	115	0.106	ppb	9.34	20.00	3.00	
121	Sb	2	115	0.114	ppb	2.32	2.00	0.80	
137	Ba	2	115	0.159	ppb	6.77	2.00	3.00	
205	Tl	2	209	0.122	ppb	9.29	2.00	0.50	
208	Pb	2	209	0.043	ppb	10.14	0.40	0.30	

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	RHigh	-30.83	20.91	76.78	-40.2	70 - 120	ISFail
45	Sc	1		127231.00	1.85	158070.19	80.5	70 - 120	
45	Sc	2		5344402.50	0.65	6406944.50	83.4	70 - 120	
72	Ge	1		69252.09	1.04	88651.82	78.1	70 - 120	
115	In	2		6033401.00	0.52	7384352.50	81.7	70 - 120	
209	Bi	2		4493201.00	0.82	5202967.00	86.4	70 - 120	

ICSA QC Report

C:\ICPCHEM\1\DATA\16H09l01.B\139ICSA.D\139ICSA.D#

Date Acquired:	Aug 10 2016 01:28 am	Sample Name:	**ICSA-160809**
Acq. Method:	DHL_3Fe.M	Misc Info:	ICSAICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 09 2016 01:04 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	RL S	RL Aq	Flag
7	Li	2	45	0.070	ppb	2.00	8.00	5.00	
9	Be	2	45	0.001	ppb	34.45	0.32	0.80	
11	B	2	45	2.312	ppb	1.17	30.00	30.00	
23	Na	1	45	105200.000	ppb	1.04	#######	#######	
24	Mg	1	45	90950.000	ppb	0.26	#######	#######	
27	Al	1	45	100500.000	ppb	0.69	#######	#######	
39	K	1	45	98300.000	ppb	0.71	#######	#######	
44	Ca	2	45	93690.000	ppb	1.88	#######	#######	
47	Ti	1	45	1967.000	ppb	2.25	10.00	10.00	
51	V	1	45	0.007	ppb	5.61	10.00	10.00	
52	Cr	1	45	0.736	ppb	2.29	8.00	5.00	
55	Mn	1	45	0.784	ppb	2.89	8.00	10.00	
56	Fe	1	72	92090.000	ppb	1.07	#######	#######	
59	Co	1	72	1.251	ppb	2.39	8.00	10.00	
60	Ni	1	72	0.367	ppb	8.44	8.00	10.00	
63	Cu	1	72	2.143	ppb	4.19	8.00	10.00	
66	Zn	1	72	1.740	ppb	10.89	10.00	5.00	
75	As	1	72	0.424	ppb	2.29	4.00	5.00	
78	Se	1	72	0.405	ppb	4.88	2.00	5.00	
88	Sr	2	115	1.102	ppb	1.24	10.00	10.00	
95	Mo	2	115	1840.000	ppb	1.36	8.00	5.00	
107	Ag	2	115	0.095	ppb	9.31	0.80	2.00	
111	Cd	2	115	0.358	ppb	4.48	1.20	1.00	
118	Sn	2	115	0.112	ppb	11.93	10.00	10.00	
121	Sb	2	115	0.124	ppb	4.55	4.00	2.50	
137	Ba	2	115	0.485	ppb	6.26	8.00	10.00	
205	Tl	2	209	0.030	ppb	4.63	4.00	1.50	
208	Pb	2	209	0.143	ppb	5.94	1.20	1.00	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-4.44	104.01	76.78	-5.8	70 - 120	ISFail
45	Sc	1	119130.96	0.54	158070.19	75.4	70 - 120	
45	Sc	2	5411480.50	1.58	6406944.50	84.5	70 - 120	
72	Ge	1	63381.42	0.44	88651.82	71.5	70 - 120	
115	In	2	6052545.50	0.79	7384352.50	82.0	70 - 120	
209	Bi	2	3898169.50	0.91	5202967.00	74.9	70 - 120	

ICS-AB QC Report

C:\ICPCHEM\1\DATA\16H09l01.B\140ICSB.D\140ICSB.D#

Date Acquired:	Aug 10 2016 01:34 am	Sample Name:	**ICSAB-160809**
Acq. Method:	DHL_3Fe.M	Misc Info:	ICSBICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 09 2016 01:04 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)			Flag
7	Li	2	45	0.08	ppb	8.76	---	80 -		120	
9	Be	2	45	0.00	ppb	5.88	---	80 -		120	
11	B	2	45	2.18	ppb	2.39	---	80 -		120	
23	Na	1	45	99220.00	ppb	0.75	100000.00	80 -		120	
24	Mg	1	45	91000.00	ppb	2.16	100000.00	80 -		120	
27	Al	1	45	96240.00	ppb	1.82	100000.00	80 -		120	
39	K	1	45	96230.00	ppb	1.17	100000.00	80 -		120	
44	Ca	2	45	94120.00	ppb	2.58	100000.00	80 -		120	
47	Ti	1	45	1933.00	ppb	2.15	---	80 -		120	
51	V	1	45	39.34	ppb	1.11	40.00	80 -		120	
52	Cr	1	45	20.35	ppb	2.07	20.00	80 -		120	
55	Mn	1	45	18.52	ppb	1.26	20.00	80 -		120	
56	Fe	1	72	90510.00	ppb	1.66	100000.00	80 -		120	
59	Co	1	72	39.63	ppb	1.40	40.00	80 -		120	
60	Ni	1	72	36.01	ppb	2.48	40.00	80 -		120	
63	Cu	1	72	19.40	ppb	2.06	20.00	80 -		120	
66	Zn	1	72	17.91	ppb	1.30	20.00	80 -		120	
75	As	1	72	19.95	ppb	1.53	20.00	80 -		120	
78	Se	1	72	18.94	ppb	4.72	20.00	80 -		120	
88	Sr	2	115	1.26	ppb	1.03	---	80 -		120	
95	Mo	2	115	1869.00	ppb	1.21	---	80 -		120	
107	Ag	2	115	17.30	ppb	2.01	20.00	80 -		120	
111	Cd	2	115	8.66	ppb	2.03	10.00	80 -		120	
118	Sn	2	115	0.32	ppb	6.45	---	80 -		120	
121	Sb	2	115	0.06	ppb	8.76	---	80 -		120	
137	Ba	2	115	0.46	ppb	4.50	---	80 -		120	
205	Tl	2	209	0.03	ppb	1.19	---	80 -		120	
208	Pb	2	209	0.14	ppb	4.34	---	80 -		120	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	-13.32	82.49	76.78	-17.4	70 -		120	ISFail
45	Sc	1	114294.10	0.74	158070.19	72.3	70 -		120	
45	Sc	2	5913222.00	2.49	6406944.50	92.3	70 -		120	
72	Ge	1	62531.31	0.48	88651.82	70.5	70 -		120	
115	In	2	6403232.00	2.00	7384352.50	86.7	70 -		120	
209	Bi	2	3877124.00	1.53	5202967.00	74.5	70 -		120	

Sample QC Report

C:\ICPCHEM\1\DATA\16H09l01.B\149SMPL.D\149SMPL.D#

Date Acquired:	Aug 10 2016 02:28 am	Sample Name:	**1607337-13A**
Acq. Method:	DHL_3Fe.M	Misc Info:	SAMPICPMS_TWDOD1
Operator:	KL	Bench Diln:	1
Last Cal. Update:	Aug 09 2016 01:04 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		Corr. Con	RSD(%)	High Limit	Flag
7	Li	2	45	0.038	ppb	#REF!	3.38	2000.00	ND
9	Be	2	45	-0.009	ppb	#REF!	0.00	2000.00	ND
11	B	2	45	14.370	ppb	#REF!	3.16	2000.00	J
23	Na	1	45	33.680	ppb	#REF!	1.23	25000.00	ND
24	Mg	1	45	6.045	ppb	#REF!	4.76	25000.00	ND
27	Al	1	45	6.350	ppb	#REF!	2.88	10000.00	ND
39	K	1	45	-4.617	ppb	#REF!	3.72	25000.00	ND
44	Ca	2	45	13.340	ppb	#REF!	7.00	25000.00	ND
47	Ti	1	45	-0.075	ppb	#REF!	0.00	2000.00	ND
51	V	1	45	-0.023	ppb	#REF!	13.98	2000.00	ND
52	Cr	1	45	0.301	ppb	#REF!	5.97	2000.00	ND
55	Mn	1	45	0.101	ppb	#REF!	3.92	2000.00	ND
56	Fe	1	72	3.506	ppb	#REF!	12.87	10000.00	ND
59	Co	1	72	-0.002	ppb	#REF!	32.74	2000.00	ND
60	Ni	1	72	0.236	ppb	#REF!	1.05	2000.00	ND
63	Cu	1	72	0.160	ppb	#REF!	5.44	2000.00	ND
66	Zn	1	72	0.264	ppb	#REF!	6.86	2000.00	ND
75	As	1	72	0.010	ppb	#REF!	3.51	2000.00	ND
78	Se	1	72	0.066	ppb	#REF!	0.00	2000.00	ND
88	Sr	2	115	0.234	ppb	#REF!	2.99	2000.00	ND
95	Mo	2	115	0.011	ppb	#REF!	13.54	2000.00	ND
107	Ag	2	115	0.006	ppb	#REF!	13.83	500.00	ND
111	Cd	2	115	-0.013	ppb	#REF!	11.71	2000.00	ND
118	Sn	2	115	0.008	ppb	#REF!	11.62	2000.00	ND
121	Sb	2	115	0.008	ppb	#REF!	20.29	500.00	ND
137	Ba	2	115	0.728	ppb	#REF!	5.73	2000.00	ND
205	Tl	2	209	0.002	ppb	#REF!	4.02	2000.00	ND
208	Pb	2	209	0.005	ppb	#REF!	12.05	2000.00	ND

ISTD Elements

Element			CPS Mean	RSD(%)		Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-9.57	188.27	RHigh	76.78	-12.5	70 - 120	ISFail
45	Sc	1	138357.83	1.87		158070.19	87.5	70 - 120	
45	Sc	2	7264824.50	2.64		6406944.50	113.4	70 - 120	
72	Ge	1	77458.84	0.90		88651.82	87.4	70 - 120	
115	In	2	7199581.50	1.27		7384352.50	97.5	70 - 120	
209	Bi	2	4747953.00	1.32		5202967.00	91.3	70 - 120	

CCV QC Report

C:\ICPCHEM\1\DATA\16H09l01.B\150CCV1.D\150CCV1.D#

Date Acquired:	Aug 10 2016 02:34 am	Sample Name:	**CCV7-160809**
Acq. Method:	DHL_3Fe.M	Misc Info:	CCV ICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 09 2016 01:04 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	211.40	ppb	1.98	200.00	90 -	110	105.7	
9	Be	2	45	193.30	ppb	2.54	200.00	90 -	110	96.7	
11	B	2	45	181.50	ppb	2.97	200.00	90 -	110	90.8	
23	Na	1	45	5794.00	ppb	0.74	5000.00	90 -	110	115.9	Fail
24	Mg	1	45	5243.00	ppb	0.99	5000.00	90 -	110	104.9	
27	Al	1	45	4782.00	ppb	0.93	5000.00	90 -	110	95.6	
39	K	1	45	5111.00	ppb	0.66	5000.00	90 -	110	102.2	
44	Ca	2	45	5330.00	ppb	2.78	5000.00	90 -	110	106.6	
47	Ti	1	45	195.70	ppb	1.93	200.00	90 -	110	97.9	
51	V	1	45	204.60	ppb	1.30	200.00	90 -	110	102.3	
52	Cr	1	45	207.40	ppb	0.93	200.00	90 -	110	103.7	
55	Mn	1	45	194.10	ppb	0.54	200.00	90 -	110	97.1	
56	Fe	1	72	4961.00	ppb	0.58	5000.00	90 -	110	99.2	
59	Co	1	72	211.40	ppb	0.42	200.00	90 -	110	105.7	
60	Ni	1	72	207.80	ppb	0.64	200.00	90 -	110	103.9	
63	Cu	1	72	212.40	ppb	0.87	200.00	90 -	110	106.2	
66	Zn	1	72	203.80	ppb	0.83	200.00	90 -	110	101.9	
75	As	1	72	206.40	ppb	0.19	200.00	90 -	110	103.2	
78	Se	1	72	193.90	ppb	1.18	200.00	90 -	110	97.0	
88	Sr	2	115	220.10	ppb	2.20	200.00	90 -	110	110.1	Fail
95	Mo	2	115	198.40	ppb	2.02	200.00	90 -	110	99.2	
107	Ag	2	115	204.10	ppb	2.60	200.00	90 -	110	102.1	
111	Cd	2	115	197.30	ppb	1.79	200.00	90 -	110	98.7	
118	Sn	2	115	193.70	ppb	2.33	200.00	90 -	110	96.9	
121	Sb	2	115	189.10	ppb	1.94	200.00	90 -	110	94.6	
137	Ba	2	115	189.90	ppb	2.75	200.00	90 -	110	95.0	
205	Tl	2	209	207.50	ppb	1.24	200.00	90 -	110	103.8	
208	Pb	2	209	201.00	ppb	1.74	200.00	90 -	110	100.5	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	-82304.90	2.29	76.78	-107201.3	70 -	120		ISFail
45	Sc	1	125201.70	0.89	158070.19	79.2	70 -	120		
45	Sc	2	6585617.50	2.74	6406944.50	102.8	70 -	120		
72	Ge	1	69514.50	0.34	88651.82	78.4	70 -	120		
115	In	2	6265898.00	2.25	7384352.50	84.9	70 -	120		
209	Bi	2	4283931.00	1.41	5202967.00	82.3	70 -	120		

CCV QC Report

C:\ICPCHEM\1\DATA\16H09l01.B\152LCVL.D\152LCVL.D#

Date Acquired:	Aug 10 2016 02:46 am	Sample Name:	**LCVL7-160809**
Acq. Method:	DHL_3Fe.M	Misc Info:	LCVLICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 09 2016 01:04 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	10.55	ppb	1.67	10.00	70 -	130	105.5	
9	Be	2	45	1.02	ppb	5.20	1.00	70 -	130	102.4	
11	B	2	45	19.50	ppb	2.95	20.00	70 -	130	97.5	
23	Na	1	45	85.41	ppb	0.67	100.00	70 -	130	85.4	
24	Mg	1	45	105.90	ppb	2.49	100.00	70 -	130	105.9	
27	Al	1	45	102.10	ppb	5.06	100.00	70 -	130	102.1	
39	K	1	45	106.40	ppb	0.78	100.00	70 -	130	106.4	
44	Ca	2	45	97.15	ppb	2.11	100.00	70 -	130	97.2	
47	Ti	1	45	4.57	ppb	8.81	5.00	70 -	130	91.5	
51	V	1	45	1.08	ppb	5.50	1.00	70 -	130	108.1	
52	Cr	1	45	5.17	ppb	1.70	5.00	70 -	130	103.3	
55	Mn	1	45	4.99	ppb	1.78	5.00	70 -	130	99.7	
56	Fe	1	72	108.10	ppb	1.80	100.00	70 -	130	108.1	
59	Co	1	72	5.38	ppb	1.05	5.00	70 -	130	107.6	
60	Ni	1	72	5.19	ppb	3.22	5.00	70 -	130	103.9	
63	Cu	1	72	5.42	ppb	0.84	5.00	70 -	130	108.5	
66	Zn	1	72	5.42	ppb	1.94	5.00	70 -	130	108.3	
75	As	1	72	5.28	ppb	2.23	5.00	70 -	130	105.5	
78	Se	1	72	5.09	ppb	9.45	5.00	70 -	130	101.8	
88	Sr	2	115	5.36	ppb	2.63	5.00	70 -	130	107.3	
95	Mo	2	115	4.99	ppb	2.38	5.00	70 -	130	99.8	
107	Ag	2	115	2.12	ppb	0.86	2.00	70 -	130	105.9	
111	Cd	2	115	1.07	ppb	10.42	1.00	70 -	130	106.5	
118	Sn	2	115	4.91	ppb	2.17	5.00	70 -	130	98.2	
121	Sb	2	115	1.99	ppb	3.25	2.00	70 -	130	99.4	
137	Ba	2	115	4.87	ppb	2.38	5.00	70 -	130	97.4	
205	Tl	2	209	1.07	ppb	2.25	1.00	70 -	130	106.7	
208	Pb	2	209	1.05	ppb	2.01	1.00	70 -	130	105.0	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	-2645.24	4.55	76.78	-3445.4	70 -	120	ISFail
45	Sc	1	131958.09	1.68	158070.19	83.5	70 -	120	
45	Sc	2	6630638.50	2.20	6406944.50	103.5	70 -	120	
72	Ge	1	72498.49	1.39	88651.82	81.8	70 -	120	
115	In	2	6417149.50	1.31	7384352.50	86.9	70 -	120	
209	Bi	2	4487306.00	0.69	5202967.00	86.2	70 -	120	

CCB QC Report

C:\ICPCHEM\1\DATA\16H09l01.B\153_CCB.D\153_CCB.D#

Date Acquired:	Aug 10 2016 02:52 am	Sample Name:	**CCB7-160809**
Acq. Method:	DHL_3Fe.M	Misc Info:	CCB ICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 09 2016 01:04 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	MDL S	MDL Aq	Flag
7	Li	2	45	0.099	ppb	4.55	2.00	2.00	
9	Be	2	45	0.028	ppb	6.74	0.40	0.30	
11	B	2	45	1.824	ppb	2.26	10.00	10.00	
23	Na	1	45	-17.230	ppb	0.69	50.00	#####	
24	Mg	1	45	2.846	ppb	8.80	50.00	#####	
27	Al	1	45	13.190	ppb	2.07	50.00	10.00	FailAq
39	K	1	45	4.196	ppb	0.71	50.00	#####	
44	Ca	2	45	15.510	ppb	3.58	50.00	#####	
47	Ti	1	45	0.361	ppb	63.82	4.00	3.00	
51	V	1	45	0.044	ppb	4.14	4.00	3.00	
52	Cr	1	45	-0.002	ppb	8.89	2.00	2.00	
55	Mn	1	45	0.122	ppb	8.00	2.00	3.00	
56	Fe	1	72	4.111	ppb	5.89	50.00	30.00	
59	Co	1	72	0.045	ppb	16.88	2.00	3.00	
60	Ni	1	72	0.140	ppb	11.71	2.00	3.00	
63	Cu	1	72	0.128	ppb	3.06	2.00	2.00	
66	Zn	1	72	0.872	ppb	7.66	4.00	2.00	
75	As	1	72	0.128	ppb	1.55	2.00	2.00	
78	Se	1	72	-0.016	ppb	8.21	0.60	2.00	
88	Sr	2	115	0.190	ppb	4.02	4.00	3.00	
95	Mo	2	115	0.077	ppb	2.00	2.00	2.00	
107	Ag	2	115	0.037	ppb	12.69	0.40	1.00	
111	Cd	2	115	0.035	ppb	4.31	0.40	0.30	
118	Sn	2	115	0.078	ppb	10.84	20.00	3.00	
121	Sb	2	115	0.058	ppb	13.12	2.00	0.80	
137	Ba	2	115	0.170	ppb	3.65	2.00	3.00	
205	Tl	2	209	0.083	ppb	5.52	2.00	0.50	
208	Pb	2	209	0.034	ppb	6.00	0.40	0.30	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-43.63	4.42	76.78	-56.8	70 - 120	ISFail
45	Sc	1	128466.02	0.42	158070.19	81.3	70 - 120	
45	Sc	2	6564520.50	2.58	6406944.50	102.5	70 - 120	
72	Ge	1	71235.80	1.58	88651.82	80.4	70 - 120	
115	In	2	6498961.00	0.94	7384352.50	88.0	70 - 120	
209	Bi	2	4515668.00	1.20	5202967.00	86.8	70 - 120	

ICP-MS3_160810B
For

DHL Work Order
1607337

Lab Data Review Check List
EPA Method 6020 / 6020A / 200.8 - Trace Metals by ICP-MS

PROJECT AND BATCH NUMBERS ARE LISTED ON THE RUN LOG	Run ID: ICP-MS3_160810B SOP: MET-ICPMS-01			
Review Item	**Yes**	**No**	**N/A**	**2nd Level Review**
Data Folder Contents 1. Is the Prep Batch Report included? ***Check the Prep Start/End Dates, Sample Amounts, Bottle #s***	X			
2. Are the reagents and spikes listed on the Prep Batch Report current with a valid expiration date? ***All standard/QC sample preparations shall be documented in LIMS***	X			x
3. Is the Run Log and instrument sequence included? ***Check the Test Code, Sample Type, Batch ID, and Analysis Date/Time***	X			

Daily Demonstration of Performance

QC items that do not meet method/SOP/project requirements will be described on the run log. All variances that impact data quality will be described in the Variance/Comment Section on page 2.

Review Item	Frequency	Limits	Pass	Fail (List Batch/Sample) **See Run Log**		2nd Level Review
Tune	Before ICAL	RSD ≤ 5% / Peak Width@10% <0.9amu	X			
P/A Factor	Before ICAL	Increasing trend	X			x
Initial Calibration Curve (ICAL) (Blank + 4 Standards)	Prior to samples and when ICV fails	R ≥ 0.995 (DoD) R ≥ 0.998 (6020A)	X			
Review Item	**Frequency**	**Limits**	**Pass**	**Fail**	**N/A**	**Review**
ICSA (N/A for Method 200.8+U)	After calibration & every 12 hours	< RL (except Mn & Zn)	X			x
ICSAB (N/A for Method 200.8+U)	After calibration & every 12 hours	80-120% (correct for ICSA result)	X			
Note: LCVLs and ICSA/ICSAB are N/A for Method 200.8 or project-specific exceptions						
ICV (Second Source Verification)	After ICAL	90-110%	X			x
ICB	After calibration	< MDL	X			
CCV	Every 10 samples	90-110%	X			
CCB	Every 10 samples	< MDL (ALL + DoD)	X			
Internal Standards	Every sample and QC sample	> 70% (6020A) 60-125% (200.8) 30-120% (DoD)	X			
LCVL (6020A test code)	After ICAL, every 10 samples and end of run	70-130%			X	
LCVL (All metals test codes except 200.8/6020A)	After ICAL and end of run	70-130%	X			
Method Blank (MB)	Every Batch	< MDL / <½ RL (DoD) or <1/10 the sample/reg limit	X			
Filter/TCLP/SPLP Blank	Filter-Dissolved only TCLP / SPLP	< MDL / <½ RL (DoD) or <1/10 the sample/reg limit			X	
Lab Control Sample (LCS)	Every Batch	80-120%	X			
Lab Control Sample Dup (LCSD)	Every Batch	80-120%	X			
LCSD - RPD	Every LCS/LCSD	15 (H2O) / 20 (Soil)	X			
Matrix Spike/ Matrix Spike Duplicate (MS/MSD)	Every Batch	80-120%			X	
MSD - RPD	Every MS/MSD	15 (H2O) / 20 (Soil)			X	
Dilution Test (SD) - RPD	Every Batch	10	X			
Post Digestion Spike (PDS)	Every Batch	75-125 / 80-120 (6020A)	X			

Lab Data Review Check List
EPA Method 6020 / 6020A / 200.8 - Trace Metals by ICP-MS

Review Item	Criteria	Yes	No	N/A	2nd Level Review
Sample Analysis 1. Are all sample hold times met?	6 months	X			x
2. Are all samples with concentrations > the highest standard used for calibration diluted and reanalyzed?	All results > high point of ICAL must be diluted	X			
3. Are ALL reported analytes and reported results > MDL highlighted by the analyst?		X	**Confirm with analyst if LIMS result does not match Labcore**		

VARIANCE REPORT

QC items that do not meet method/SOP/project requirements will be described on the run log. All variances that impact data quality will be described in this section.

NON-CONFORMANCES / VARIANCE	Criteria	Yes	No	N/A	2nd Level
1. Are all non-conformances and corrective actions included and noted?	All deviations from the method and SOP that affect data quality	X			x
2. Does the variance require approval by the Technical Director/General Manager/QA Manager?		X			

TECHNICAL DIRECTOR / QA MANAGER APPROVAL
SIGNATURE AND DATE STAMP:

Description and Corrective Actions of QC items that do not meet method/SOP/project requirements:

****INCLUDE VARIANCE ITEM / REASON / CORRECTIVE ACTION / IMPACT ON DATA****

VARIANCE ITEM	REASON	CORRECTIVE ACTION
__ CCV out of control (± 10%)	__ Carryover from previous run	__ Reanalyze QC to confirm
__ CCB out of control (> MDL / >½ RL)	__ Cross contamination	__ Recalibrate
__ MB out of control (> RL / >½ RL)	__ Lab Artifact	__ Reprep/Reanalyze sample
__ LCS __ LCSD out of control (± 20%)	__ Prep Spike error (describe)	__ Reprep/Reanalyze Batch
__ MS __ MSD out of control (± 20%)	__ Matrix Effect	__ Reanalyze Batch/Sample/QC
__ RPD out of control for MS/MSD (15/25)	__ High Levels of Target Metals	__ Verify reagents are clean
__ Internal Standard(s) out of control (see Method)	__ Insufficient sample for QC	__ Reanalyze sample to confirm
__ No MS/MSD prepared - LCS/LCSD used instead	__ Digestion/Prep Error	__ Sample results ND w/ dilution
__ Missing QC (other than MS/MSD)	__ Analytical Error	__ Client notified and approved
__ QC sample(s) was mis-spiked	__ Client Request	__ Flag Data/ Case Narative
__ ICSA/ICSAB missing or out of control (± 20%)		__ Accept data
__ LCVL out of control (± 30%)		__ Cal Std high and sample ND
__ Other (describe below)	__ Other (describe below)	__ Other (describe below)

General Comments and Impact on Data:

Analyst: Cassie Van Dyke Date of Completion: 08/11/2016

Second-Level Review: Janice Whitt Date Stamp: 8/15/2016

REVIEWED BY
By Janice Whitt at 11:19:28 AM, 8/15/2016

DHL Analytical, Inc.

Run ID: ICP-MS3_160810B **Run No.:** 87549

Analytical Run Date: 8/10/2016 **InstrumentID:** ICP-MS3

Analyst: Cassie Van Dyke

SampID	DF	TestCode	SampType	Batch ID	Analysis Date/Time	Q	Comments
BLANK STD 1	1	ICPMS_TWDOD	CAL	R87549	8/10/2016 11:23:00 AM		
L2-160810	1	ICPMS_TWDOD	CAL	R87549	8/10/2016 11:29:00 AM		
L-160810	1	ICPMS_TWDOD	CAL	R87549	8/10/2016 11:35:00 AM		
10X-160810	1	ICPMS_TWDOD	CAL	R87549	8/10/2016 11:41:00 AM		
5X-160810	1	ICPMS_TWDOD	CAL	R87549	8/10/2016 11:47:00 AM		
2X-160810	1	ICPMS_TWDOD	CAL	R87549	8/10/2016 11:53:00 AM		
H-160810	1	ICPMS_TWDOD	CAL	R87549	8/10/2016 11:59:00 AM		
H2-160810	1	ICPMS_TWDOD	CAL	R87549	8/10/2016 12:05:00 PM		
ICSA-160810	1	ICPMS_TWDOD	ICSA	R87549	8/10/2016 12:23:00 PM		
ICSAB-160810	1	ICPMS_TWDOD	ICSB	R87549	8/10/2016 12:29:00 PM		
ICV1-160810	1	ICPMS_TWDOD	ICV	R87549	8/10/2016 12:47:00 PM		
ICV1-160810	1	ICPMS_TWDOD	ICV	R87549	8/10/2016 12:59:00 PM		ICV1 reran for missed analytes from another work order. Pb passes in both runs.
ILCVL-160810	1	ICPMS_TWDOD	LCVL	R87549	8/10/2016 1:05:00 PM		
ICB1-160810	1	ICPMS_TWDOD	ICB	R87549	8/10/2016 1:11:00 PM		
1607294-09A	5	ICPMS_TSDOD1	SAMP	76670	8/10/2016 3:09:00 PM		
1607294-09A SD	25	ICPMS_TSDOD1	SD	76670	8/10/2016 3:15:00 PM		
1607294-09A PDS	5	ICPMS_TSDOD1	PDS	76670	8/10/2016 3:21:00 PM		
1607294-09A MS	5	ICPMS_TSDOD1	MS	76670	8/10/2016 3:27:00 PM		
1607294-09A MSD	5	ICPMS_TSDOD1	MSD	76670	8/10/2016 3:32:00 PM		S flag for Pb (High); R flag Pb; Verified from previous run.
CCV1-160810	1	ICPMS_TWDOD	CCV	R87549	8/10/2016 3:38:00 PM		
LCVL1-160810	1	ICPMS_TWDOD	LCVL	R87549	8/10/2016 3:50:00 PM		
CCB1-160810	1	ICPMS_TWDOD	CCB	R87549	8/10/2016 3:56:00 PM		
MB-76690	5	ICPMS_TSDOD1	MBLK	76690	8/10/2016 4:02:00 PM		
LCS-76690	5	ICPMS_TSDOD1	LCS	76690	8/10/2016 4:08:00 PM		
LCSD-76690	5	ICPMS_TSDOD1	LCSD	76690	8/10/2016 4:14:00 PM		
1607314-03A	5	ICPMS_TSDOD1	SAMP	76690	8/10/2016 4:26:00 PM		
1607314-03A SD	25	ICPMS_TSDOD1	SD	76690	8/10/2016 4:31:00 PM		
1607294-69A	5	ICPMS_TSDOD1	SAMP	76690	8/10/2016 4:56:00 PM		Rounds. jw 8/15/2016
1607294-70A	5	ICPMS_TSDOD1	SAMP	76690	8/10/2016 5:02:00 PM		~~S flag for INST Sc (High); Does not affect Pb.~~

Std ID	Std Name	Type	Exp. Date
MET-CCV-160804	ICPMS CCV 200/5000 PPB		02/02/2017
MET-H2CAL-1608	ICPMS High Cal2 2000ppb std 8		02/02/2017
MET-HCAL-16080	ICPMS High Cal 500ppb/10ppm s		02/02/2017
MET-ICV-160804	ICPMS ICV 100 ppb		02/02/2017
MET-IS-160511	INTERNAL STANDARD 1 PPM		11/09/2016
MET-L2CAL-16080	ICPMS Low Cal2 1/20ppb std 2		02/02/2017
MET-LCAL-160804	ICPMS Low Cal 10/200ppb std 3		02/02/2017
MET-LCAL10X-16	ICPMS Low Cal 10/200ppb std 4		02/02/2017
MET-LCAL5X-160	ICPMS Low Cal 10/200ppb std 5		02/02/2017
MET-LCVLSPIKE-	LCVL METALS SPIKE (100/500		11/07/2016
MET-MCAL-16080	ICPMS Mid Cal 250/5000ppb std		02/02/2017
MET-PA-160421	ICPMS PA FACTOR SOLUTION		10/20/2016
MET-PDS-160701-	10 PPM Ag+Sb PDS		01/01/2017
MET-PDS-160701-	10 PPM CUSTOM PDS SOLUTI		01/01/2017
MET-PDS-160701-	250 PPM Naturals+Al+Fe PDS		07/01/2017

Run ID: ICP-MS3_160810B **Run No.:** 87549

1607294-71A	5	ICPMS_TSDOD1	SAMP	76690	8/10/2016 5:08:00 PM		
1607294-72A	5	ICPMS_TSDOD1	SAMP	76690	8/10/2016 5:13:00 PM		
1607294-73A	5	ICPMS_TSDOD1	SAMP	76690	8/10/2016 5:19:00 PM		
1607294-74A	5	ICPMS_TSDOD1	SAMP	76690	8/10/2016 5:31:00 PM		
1607294-75A	5	ICPMS_TSDOD1	SAMP	76690	8/10/2016 5:37:00 PM		
1607314-01A	5	ICPMS_TSDOD1	SAMP	76690	8/10/2016 5:43:00 PM		
1607314-02A	5	ICPMS_TSDOD1	SAMP	76690	8/10/2016 5:49:00 PM		
1607314-03A PDS	5	ICPMS_TSDOD1	PDS	76690	8/10/2016 5:55:00 PM		
1607314-03A MS	5	ICPMS_TSDOD1	MS	76690	8/10/2016 6:00:00 PM		
1607314-03A MSD	5	ICPMS_TSDOD1	MSD	76690	8/10/2016 6:06:00 PM		
CCV2-160810	1	ICPMS_TWDOD	CCV	R87549	8/10/2016 6:12:00 PM		
LCVL2-160810	1	ICPMS_TWDOD	LCVL	R87549	8/10/2016 6:24:00 PM		
CCB2-160810	1	ICPMS_TWDOD	CCB	R87549	8/10/2016 6:30:00 PM		
1607314-04A	5	ICPMS_TSDOD1	SAMP	76690	8/10/2016 6:36:00 PM		
1607314-05A	5	ICPMS_TSDOD1	SAMP	76690	8/10/2016 6:42:00 PM		
1607314-06A	5	ICPMS_TSDOD1	SAMP	76690	8/10/2016 6:48:00 PM		
1607317-01A	5	ICPMS_TSDOD1	SAMP	76690	8/10/2016 6:54:00 PM		
1607317-02A	5	ICPMS_TSDOD1	SAMP	76690	8/10/2016 6:59:00 PM		
1607317-03A	5	ICPMS_TSDOD1	SAMP	76690	8/10/2016 7:11:00 PM		
1607317-04A	5	ICPMS_TSDOD1	SAMP	76690	8/10/2016 7:17:00 PM		
1607317-05A	5	ICPMS_TSDOD1	SAMP	76690	8/10/2016 7:23:00 PM		
1607317-06A	5	ICPMS_TSDOD1	SAMP	76690	8/10/2016 7:29:00 PM		
1607317-07A	5	ICPMS_TSDOD1	SAMP	76690	8/10/2016 7:35:00 PM		
CCV3-160810	1	ICPMS_TWDOD	CCV	R87549	8/10/2016 7:41:00 PM		
LCVL3-160810	1	ICPMS_TWDOD	LCVL	R87549	8/10/2016 7:53:00 PM		
CCB3-160810	1	ICPMS_TWDOD	CCB	R87549	8/10/2016 7:59:00 PM		
MB-76716	5	ICPMS_TSDOD1	MBLK	76716	8/10/2016 8:05:00 PM		
LCS-76716	5	ICPMS_TSDOD1	LCS	76716	8/10/2016 8:11:00 PM		
LCSD-76716	5	ICPMS_TSDOD1	LCSD	76716	8/10/2016 8:17:00 PM		
1607317-09A	5	ICPMS_TSDOD1	SAMP	76716	8/10/2016 8:30:00 PM		
1607317-09A SD	25	ICPMS_TSDOD1	SD	76716	8/10/2016 8:35:00 PM		
1607317-08A	5	ICPMS_TSDOD1	SAMP	76716	8/10/2016 8:41:00 PM		
1607317-10A	5	ICPMS_TSDOD1	SAMP	76716	8/10/2016 8:47:00 PM		
1607317-11A	5	ICPMS_TSDOD1	SAMP	76716	8/10/2016 8:53:00 PM		
1607317-12A	5	ICPMS_TSDOD1	SAMP	76716	8/10/2016 8:59:00 PM		

Std ID	Std Name	Type	Exp. Date
MET-CCV-160804	ICPMS CCV 200/5000 PPB		02/02/2017
MET-H2CAL-1608	ICPMS High Cal2 2000ppb std 8		02/02/2017
MET-HCAL-16080	ICPMS High Cal 500ppb/10ppm s		02/02/2017
MET-ICV-160804	ICPMS ICV 100 ppb		02/02/2017
MET-IS-160511	INTERNAL STANDARD 1 PPM		11/09/2016
MET-L2CAL-16080	ICPMS Low Cal2 1/20ppb std 2		02/02/2017
MET-LCAL-160804	ICPMS Low Cal 10/200ppb std 3		02/02/2017
MET-LCAL10X-16	ICPMS Low Cal 10/200ppb std 4		02/02/2017
MET-LCAL5X-160	ICPMS Low Cal 10/200ppb std 5		02/02/2017
MET-LCVLSPIKE-	LCVL METALS SPIKE (100/500		11/07/2016
MET-MCAL-16080	ICPMS Mid Cal 250/5000ppb std		02/02/2017
MET-PA-160421	ICPMS PA FACTOR SOLUTION		10/20/2016
MET-PDS-160701-	10 PPM Ag+Sb PDS		01/01/2017
MET-PDS-160701-	10 PPM CUSTOM PDS SOLUTI		01/01/2017
MET-PDS-160701-	250 PPM Naturals+Al+Fe PDS		07/01/2017

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Run ID: ICP-MS3_160810B **Run No.:** 87549

1607317-14A	5	ICPMS_TSDOD1	SAMP	76716	8/10/2016 9:05:00 PM		
1607317-15A	5	ICPMS_TSDOD1	SAMP	76716	8/10/2016 9:17:00 PM		
1607317-16A	5	ICPMS_TSDOD1	SAMP	76716	8/10/2016 9:23:00 PM		
1607317-17A	5	ICPMS_TSDOD1	SAMP	76716	8/10/2016 9:29:00 PM		
1607317-18A	5	ICPMS_TSDOD1	SAMP	76716	8/10/2016 9:35:00 PM		
1607317-09A PDS	5	ICPMS_TSDOD1	PDS	76716	8/10/2016 9:41:00 PM		
1607317-09A MS	5	ICPMS_TSDOD1	MS	76716	8/10/2016 9:46:00 PM		S flag for Pb (High).
1607317-09A MSD	5	ICPMS_TSDOD1	MSD	76716	8/10/2016 9:52:00 PM		S flag for Pb (High).
CCV4-160810	1	ICPMS_TWDOD	CCV	R87549	8/10/2016 9:58:00 PM		
LCVL4-160810	1	ICPMS_TWDOD	LCVL	R87549	8/10/2016 10:10:00 PM		
CCB4-160810	1	ICPMS_TWDOD	CCB	R87549	8/10/2016 10:17:00 PM		
1607317-19A	5	ICPMS_TSDOD1	SAMP	76716	8/10/2016 10:23:00 PM		
1607317-20A	5	ICPMS_TSDOD1	SAMP	76716	8/10/2016 10:29:00 PM		
1607317-21A	5	ICPMS_TSDOD1	SAMP	76716	8/10/2016 10:34:00 PM		
1607317-22A	5	ICPMS_TSDOD1	SAMP	76716	8/10/2016 10:40:00 PM		
1607317-23A	5	ICPMS_TSDOD1	SAMP	76716	8/10/2016 10:46:00 PM		
1607317-24A	5	ICPMS_TSDOD1	SAMP	76716	8/10/2016 10:58:00 PM		
1607317-25A	5	ICPMS_TSDOD1	SAMP	76716	8/10/2016 11:04:00 PM		
1607317-28A	5	ICPMS_TSDOD1	SAMP	76716	8/10/2016 11:10:00 PM		
1607317-29A	5	ICPMS_TSDOD1	SAMP	76716	8/10/2016 11:16:00 PM		
1607317-30A	5	ICPMS_TSDOD1	SAMP	76716	8/10/2016 11:22:00 PM		
CCV5-160810	1	ICPMS_TWDOD	CCV	R87549	8/10/2016 11:28:00 PM		
LCVL5-160810	1	ICPMS_TWDOD	LCVL	R87549	8/10/2016 11:40:00 PM		
CCB5-160810	1	ICPMS_TWDOD	CCB	R87549	8/10/2016 11:46:00 PM		
MB-76717	5	ICPMS_TSDOD1	MBLK	76717	8/10/2016 11:52:00 PM		
LCS-76717	5	ICPMS_TSDOD1	LCS	76717	8/10/2016 11:58:00 PM		
LCSD-76717	5	ICPMS_TSDOD1	LCSD	76717	8/11/2016 12:04:00 AM		
1607317-27A	5	ICPMS_TSDOD1	SAMP	76717	8/11/2016 12:17:00 AM		DNR - SD misprepared. See rerun of QC.
1607317-27A SD	25	ICPMS_TSDOD1	SD	76717	8/11/2016 12:23:00 AM		DNR
1607317-31A	5	ICPMS_TSDOD1	SAMP	76717	8/11/2016 12:29:00 AM		
ICSA-160810	1	ICPMS_TWDOD	ICSA	R87549	8/11/2016 12:35:00 AM		
ICSAB-160810	1	ICPMS_TWDOD	ICSB	R87549	8/11/2016 12:41:00 AM		
1607317-32A	5	ICPMS_TSDOD1	SAMP	76717	8/11/2016 12:59:00 AM		
1607317-33A	5	ICPMS_TSDOD1	SAMP	76717	8/11/2016 1:05:00 AM		
1607317-34A	5	ICPMS_TSDOD1	SAMP	76717	8/11/2016 1:11:00 AM		

Std ID	Std Name	Type	Exp. Date
MET-CCV-160804	ICPMS CCV 200/5000 PPB		02/02/2017
MET-H2CAL-1608	ICPMS High Cal2 2000ppb std 8		02/02/2017
MET-HCAL-16080	ICPMS High Cal 500ppb/10ppm s		02/02/2017
MET-ICV-160804	ICPMS ICV 100 ppb		02/02/2017
MET-IS-160511	INTERNAL STANDARD 1 PPM		11/09/2016
MET-L2CAL-16080	ICPMS Low Cal2 1/20ppb std 2		02/02/2017
MET-LCAL-160804	ICPMS Low Cal 10/200ppb std 3		02/02/2017
MET-LCAL10X-16	ICPMS Low Cal 10/200ppb std 4		02/02/2017
MET-LCAL5X-160	ICPMS Low Cal 10/200ppb std 5		02/02/2017
MET-LCVLSPIKE-	LCVL METALS SPIKE (100/500		11/07/2016
MET-MCAL-16080	ICPMS Mid Cal 250/5000ppb std		02/02/2017
MET-PA-160421	ICPMS PA FACTOR SOLUTION		10/20/2016
MET-PDS-160701-	10 PPM Ag+Sb PDS		01/01/2017
MET-PDS-160701-	10 PPM CUSTOM PDS SOLUTI		01/01/2017
MET-PDS-160701-	250 PPM Naturals+Al+Fe PDS		07/01/2017

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Run ID: ICP-MS3_160810B **Run No.:** 87549

1607317-35A	5	ICPMS_TSDOD1	SAMP	76717	8/11/2016 1:16:00 AM		
1607317-36A	5	ICPMS_TSDOD1	SAMP	76717	8/11/2016 1:29:00 AM		
1607317-37A	5	ICPMS_TSDOD1	SAMP	76717	8/11/2016 1:35:00 AM		
1607317-38A	5	ICPMS_TSDOD1	SAMP	76717	8/11/2016 1:40:00 AM		
1607337-01A	5	ICPMS_TSDOD1	SAMP	76717	8/11/2016 1:46:00 AM		
1607317-27A PDS	5	ICPMS_TSDOD1	PDS	76717	8/11/2016 1:52:00 AM		DNR
1607317-27A MS	5	ICPMS_TSDOD1	MS	76717	8/11/2016 1:58:00 AM		S flag for Pb (High). DNR
1607317-27A MSD	5	ICPMS_TSDOD1	MSD	76717	8/11/2016 2:04:00 AM		S flag for Pb (High). DNR
CCV6-160810	1	ICPMS_TWDOD	CCV	R87549	8/11/2016 2:10:00 AM		
LCVL-160810	1	ICPMS_TWDOD	LCVL	R87549	8/11/2016 2:22:00 AM		
CCB6-160810	1	ICPMS_TWDOD	CCB	R87549	8/11/2016 2:28:00 AM		
1607337-02A	5	ICPMS_TSDOD1	SAMP	76717	8/11/2016 2:34:00 AM		
1607337-03A	5	ICPMS_TSDOD1	SAMP	76717	8/11/2016 2:40:00 AM		
1607337-04A	5	ICPMS_TSDOD1	SAMP	76717	8/11/2016 2:46:00 AM		
1607337-05A	5	ICPMS_TSDOD1	SAMP	76717	8/11/2016 2:52:00 AM		
1607337-06A	5	ICPMS_TSDOD1	SAMP	76717	8/11/2016 2:58:00 AM		
1607337-07A	5	ICPMS_TSDOD1	SAMP	76717	8/11/2016 3:10:00 AM		
1607337-08A	5	ICPMS_TSDOD1	SAMP	76717	8/11/2016 3:16:00 AM		
1607337-09A	5	ICPMS_TSDOD1	SAMP	76717	8/11/2016 3:22:00 AM		
1607337-11A	5	ICPMS_TSDOD1	SAMP	76717	8/11/2016 3:28:00 AM		
1607337-12A	5	ICPMS_TSDOD1	SAMP	76717	8/11/2016 3:34:00 AM		
CCV7-160810	1	ICPMS_TWDOD	CCV	R87549	8/11/2016 3:40:00 AM		
LCVL7-160810	1	ICPMS_TWDOD	LCVL	R87549	8/11/2016 3:52:00 AM		
CCB7-160810	1	ICPMS_TWDOD	CCB	R87549	8/11/2016 3:58:00 AM		

Std ID	Std Name	Type	Exp. Date
MET-CCV-160804	ICPMS CCV 200/5000 PPB		02/02/2017
MET-H2CAL-1608	ICPMS High Cal2 2000ppb std 8		02/02/2017
MET-HCAL-16080	ICPMS High Cal 500ppb/10ppm s		02/02/2017
MET-ICV-160804	ICPMS ICV 100 ppb		02/02/2017
MET-IS-160511	INTERNAL STANDARD 1 PPM		11/09/2016
MET-L2CAL-16080	ICPMS Low Cal2 1/20ppb std 2		02/02/2017
MET-LCAL-160804	ICPMS Low Cal 10/200ppb std 3		02/02/2017
MET-LCAL10X-16	ICPMS Low Cal 10/200ppb std 4		02/02/2017
MET-LCAL5X-160	ICPMS Low Cal 10/200ppb std 5		02/02/2017
MET-LCVLSPIKE-	LCVL METALS SPIKE (100/500		11/07/2016
MET-MCAL-16080	ICPMS Mid Cal 250/5000ppb std		02/02/2017
MET-PA-160421	ICPMS PA FACTOR SOLUTION		10/20/2016
MET-PDS-160701-	10 PPM Ag+Sb PDS		01/01/2017
MET-PDS-160701-	10 PPM CUSTOM PDS SOLUTI		01/01/2017
MET-PDS-160701-	250 PPM Naturals+Al+Fe PDS		07/01/2017

	Method	Type	Vial	Data File	Sample	Comment	Dil/Lvl	ISTD Conc	Action on Failure	Skip	Result
1		Keyword		CALBEG	Start of CALIB						
2	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1101		BLANK	CAL ICPMS_TW	1.000				
3	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1102		BLANK	CAL ICPMS_TW	1.000				
4	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1103		BLANK	CAL ICPMS_TW	1.000				
5	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1104		BLANK	CAL ICPMS_TW	1.000				
6	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		BLANK	CAL ICPMS_TW	1.000				
7	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalBlk	2101		BLANK STD 1	CAL ICPMS_TW	Level 1				
8	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalStd	2102		L2-160810	CAL ICPMS_TW	Level 2				
9	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalStd	2103		L-160810	CAL ICPMS_TW	Level 3				
10	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalStd	2104		10X-160810	CAL ICPMS_TW	Level 4				
11	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalStd	2105		5X-160810	CAL ICPMS_TW	Level 5				
12	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalStd	2106		2X-160810	CAL ICPMS_TW	Level 6				
13	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalStd	2107		H-160810	CAL ICPMS_TW	Level 7				
14	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CalStd	2108		H2-160810	CAL ICPMS_TW	Level 8				
15	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1104		BLANK	CAL ICPMS_TW	1.000				
16	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		BLANK	CAL ICPMS_TW	1.000				
17		Keyword		CALEND	End of CALIB						
18		Keyword		ICSBEG	Start of ICS						
19	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	ICS-A	2109		ICSA-160810	ICSAICPMS_TW	1.000				
20	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	ICS-AB	2110		ICSAB-160810	ICSBICPMS_TW	1.000				
21	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1103		RINSE	CAL ICPMS_TW	1.000				
22	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1104		RINSE	CAL ICPMS_TW	1.000				
23		Keyword		ICSEND	End of ICS						
24		Keyword		SMPLBEG	Start of SMPL						
25	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	ICV	2111		ICV1-160810	ICV ICPMS_TW	1.000				

	Method	Type	Vial	Data File	Sample	Comment	Dil/Lvl	ISTD Conc	Action on Failure	Skip	Result
26	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	ICB	1104		ICB1-160810	ICB ICPMS_TW	1.000				
27	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	ICV	2510		ICV1-160810	ICV ICPMS_TW	1.000				
28	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCVL5	2112		ILCVL-160810	LCVLICPMS_TW	1.000				
29	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	ICB	1104		ICB1-160810	ICB ICPMS_TW	1.000				
30	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	PB W	2201		MB-76606	MBLK200.8_EPA	1.000				
31	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCS_200	2202		LCS-76606	LCS 200.8_EPA	1.000				
32	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCS_200	2203		LCSD-76606	LCSD200.8_EPA	1.000				
33	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1101		RINSE	CCB ICPMS_TW	1.000				
34	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	AllRef	2204		1607168-22A	SAMP200.8_EPA	1.000				
35	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	DT	2205		1607168-22A SD	SD_200.8_EPA	5.000				
36	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	2206		1607168-21A	SAMP200.8_EPA	1.000				
37	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	2207		1607168-23A	SAMP200.8_EPA	1.000				
38	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	2208		1607168-24A	SAMP200.8_EPA	1.000				
39	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	2209		1607168-25A	SAMP200.8_EPA	1.000				
40	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	2210		1607168-26A	SAMP200.8_EPA	1.000				
41	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	2211		1607168-27A	SAMP200.8_EPA	1.000				
42	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleW	2212		1607168-28A	SAMP200.8_EPA	1.000				
43	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	PDS	2301		1607168-22A PDS	PDS 200.8_EPA	1.000				
44	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	MS_W	2302		1607168-22A MS	MS_200.8_EPA	1.000				
45	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	MS_W	2303		1607168-22A MSD	MSD 200.8_EPA	1.000				
46	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1101		RINSE	CCB ICPMS_TW	1.000				
47	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	AllRef	2304		1607294-09A	SAMPICPMS_TSDOD1	5.000				
48	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	DT	2305		1607294-09A SD	SD_ICPMS_TSDOD1	25.00				

	Method	Type	Vial	Data File	Sample	Comment	Dil/Lvl	ISTD Conc	Action on Failure	Skip	Result
49	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	PDS	2306		1607294-09A PDS	PDS ICPMS_TSDOD1	5.000				
50	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	MS_S	2307		1607294-09A MS	MS_ICPMS_TSDOD1	5.000				
51	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	MS_S	2308		1607294-09A MSD	MSD ICPMS_TSDOD1	5.000				
52	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	1307		CCV1-160810	CCV ICPMS_TW	1.000				
53	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1104		CCB1-160810	CCB ICPMS_TW	1.000				
54	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCVL5	2512		LCVL1-160810	LCVLICPMS_TW	1.000				
55	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		CCB1-160810	CCB ICPMS_TW	1.000				
56	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	PB	3101		MB-76690	MBLKICPMS_TSDOD1	5.000				
57	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCS	3102		LCS-76690	LCS ICPMS_TSDOD1	5.000				
58	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCS	3103		LCSD-76690	LCSDICPMS_TSDOD1	5.000				
59	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1101		RINSE	CCB ICPMS_TW	1.000				
60	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	AllRef	3104		1607314-03A	SAMPICPMS_TSDOD1	5.000				
61	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	DT	3105		1607314-03A SD	SD_ICPMS_TSDOD1	25.00				
62	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3106		1607294-69A	SAMPICPMS_TSDOD1	5.000				
63	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3107		1607294-70A	SAMPICPMS_TSDOD1	5.000				
64	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3108		1607294-71A	SAMPICPMS_TSDOD1	5.000				
65	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3109		1607294-72A	SAMPICPMS_TSDOD1	5.000				
66	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3110		1607294-73A	SAMPICPMS_TSDOD1	5.000				
67	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1101		RINSE	CCB ICPMS_TW	1.000				
68	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3111		1607294-74A	SAMPICPMS_TSDOD1	5.000				
69	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3112		1607294-75A	SAMPICPMS_TSDOD1	5.000				
70	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3201		1607314-01A	SAMPICPMS_TSDOD1	5.000				
71	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3202		1607314-02A	SAMPICPMS_TSDOD1	5.000				

	Method	Type	Vial	Data File	Sample	Comment	Dil/Lvl	ISTD Conc	Action on Failure	Skip	Result
72	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	PDS	3203		1607314-03A PDS	PDS ICPMS_TSDOD1	5.000				
73	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	MS_S	3204		1607314-03A MS	MS_ICPMS_TSDOD1	5.000				
74	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	MS_S	3205		1607314-03A MSD	MSD ICPMS_TSDOD1	5.000				
75	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	1307		CCV2-160810	CCV ICPMS_TW	1.000				
76	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1104		CCB2-160810	CCB ICPMS_TW	1.000				
77	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCVL5	2112		LCVL2-160810	LCVLICPMS_TW	1.000				
78	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		CCB2-160810	CCB ICPMS_TW	1.000				
79	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3206		1607314-04A	SAMPICPMS_TSDOD1	5.000				
80	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3207		1607314-05A	SAMPICPMS_TSDOD1	5.000				
81	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3208		1607314-06A	SAMPICPMS_TSDOD1	5.000				
82	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3209		1607317-01A	SAMPICPMS_TSDOD1	5.000				
83	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3210		1607317-02A	SAMPICPMS_TSDOD1	5.000				
84	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1101		RINSE	CCB ICPMS_TW	1.000				
85	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3211		1607317-03A	SAMPICPMS_TSDOD1	5.000				
86	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3212		1607317-04A	SAMPICPMS_TSDOD1	5.000				
87	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3301		1607317-05A	SAMPICPMS_TSDOD1	5.000				
88	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3302		1607317-06A	SAMPICPMS_TSDOD1	5.000				
89	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3303		1607317-07A	SAMPICPMS_TSDOD1	5.000				
90	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	1307		CCV3-160810	CCV ICPMS_TW	1.000				
91	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1104		CCB3-160810	CCB ICPMS_TW	1.000				
92	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCVL5	2112		LCVL3-160810	LCVLICPMS_TW	1.000				
93	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		CCB3-160810	CCB ICPMS_TW	1.000				
94	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	PB	2309		MB-76716	MBLKICPMS_TSDOD1	5.000				

	Method	Type	Vial	Data File	Sample	Comment	Dil/Lvl	ISTD Conc	Action on Failure	Skip	Result
95	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCS	2310		LCS-76716	LCS ICPMS_TSDOD1	5.000				
96	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCS	2311		LCSD-76716	LCSDICPMS_TSDOD1	5.000				
97	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1101		RINSE	CCB ICPMS_TW	1.000				
98	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	AllRef	2312		1607317-09A	SAMPICPMS_TSDOD1	5.000				
99	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	DT	2401		1607317-09A SD	SD ICPMS_TSDOD1	25.00				
100	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2402		1607317-08A	SAMPICPMS_TSDOD1	5.000				
101	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2403		1607317-10A	SAMPICPMS_TSDOD1	5.000				
102	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2404		1607317-11A	SAMPICPMS_TSDOD1	5.000				
103	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2405		1607317-12A	SAMPICPMS_TSDOD1	5.000				
104	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2406		1607317-14A	SAMPICPMS_TSDOD1	5.000				
105	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1101		RINSE	CCB ICPMS_TW	1.000				
106	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2407		1607317-15A	SAMPICPMS_TSDOD1	5.000				
107	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2408		1607317-16A	SAMPICPMS_TSDOD1	5.000				
108	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2409		1607317-17A	SAMPICPMS_TSDOD1	5.000				
109	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2410		1607317-18A	SAMPICPMS_TSDOD1	5.000				
110	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	PDS	2411		1607317-09A PDS	PDS ICPMS_TSDOD1	5.000				
111	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	MS_S	2412		1607317-09A MS	MS ICPMS_TSDOD1	5.000				
112	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	MS_S	2501		1607317-09A MSD	MSD ICPMS_TSDOD1	5.000				
113	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	1307		CCV4-160810	CCV ICPMS_TW	1.000				
114	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1104		CCB4-160810	CCB ICPMS_TW	1.000				
115	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCVL5	2112		LCVL4-160810	LCVLICPMS_TW	1.000				
116	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		CCB4-160810	CCB ICPMS_TW	1.000				
117	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2502		1607317-19A	SAMPICPMS_TSDOD1	5.000				

	Method	Type	Vial	Data File	Sample	Comment	Dil/Lvl	ISTD Conc	Action on Failure	Skip	Result
118	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2503		1607317-20A	SAMPICPMS_TSDOD1	5.000				
119	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2504		1607317-21A	SAMPICPMS_TSDOD1	5.000				
120	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2505		1607317-22A	SAMPICPMS_TSDOD1	5.000				
121	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2506		1607317-23A	SAMPICPMS_TSDOD1	5.000				
122	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1101		RINSE	CCB ICPMS_TW	1.000				
123	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2507		1607317-24A	SAMPICPMS_TSDOD1	5.000				
124	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2508		1607317-25A	SAMPICPMS_TSDOD1	5.000				
125	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	2509		1607317-28A	SAMPICPMS_TSDOD1	5.000				
126	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3305		1607317-29A	SAMPICPMS_TSDOD1	5.000				
127	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3306		1607317-30A	SAMPICPMS_TSDOD1	5.000				
128	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	1307		CCV5-160810	CCV ICPMS_TW	1.000				
129	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		CCB5-160810	CCB ICPMS_TW	1.000				
130	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCVL5	2512		LCVL5-160810	LCVLICPMS_TW	1.000				
131	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		CCB5-160810	CCB ICPMS_TW	1.000				
132	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	PB	3401		MB-76717	MBLKICPMS_TSDOD1	5.000				
133	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCS	3402		LCS-76717	LCS ICPMS_TSDOD1	5.000				
134	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCS	3403		LCSD-76717	LCSDICPMS_TSDOD1	5.000				
135	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1101		RINSE	CCB ICPMS_TW	1.000				
136	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	AllRef	3404		1607317-27A	SAMPICPMS_TSDOD1	5.000				
137	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	DT	3405		1607317-27A SD	SD ICPMS_TSDOD1	25.00				
138	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3406		1607317-31A	SAMPICPMS_TSDOD1	5.000				
139	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3407		1607317-32A	SAMPICPMS_TSDOD1	5.000				
140	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3408		1607317-33A	SAMPICPMS_TSDOD1	5.000				

	Method	Type	Vial	Data File	Sample	Comment	Dil/Lvl	ISTD Conc	Action on Failure	Skip	Result
141	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3409		1607317-34A	SAMPICPMS_TSDOD1	5.000				
142	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3410		1607317-35A	SAMPICPMS_TSDOD1	5.000				
143	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1101		RINSE	CCB ICPMS_TW	1.000				
144	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3411		1607317-36A	SAMPICPMS_TSDOD1	5.000				
145	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3412		1607317-37A	SAMPICPMS_TSDOD1	5.000				
146	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3501		1607317-38A	SAMPICPMS_TSDOD1	5.000				
147	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3502		1607337-01A	SAMPICPMS_TSDOD1	5.000				
148	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	PDS	3503		1607317-27A PDS	PDS ICPMS_TSDOD1	5.000				
149	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	MS_S	3504		1607317-27A MS	MS_ICPMS_TSDOD1	5.000				
150	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	MS_S	3505		1607317-27A MSD	MSD ICPMS_TSDOD1	5.000				
151	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	1307		CCV6-160810	CCV ICPMS_TW	1.000				
152	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1104		CCB6-160810	CCB ICPMS_TW	1.000				
153	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCVL5	2112		LCVL-160810	LCVLICPMS_TW	1.000				
154	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		CCB6-160810	CCB ICPMS_TW	1.000				
155	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3506		1607337-02A	SAMPICPMS_TSDOD1	5.000				
156	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3507		1607337-03A	SAMPICPMS_TSDOD1	5.000				
157	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3508		1607337-04A	SAMPICPMS_TSDOD1	5.000				
158	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3509		1607337-05A	SAMPICPMS_TSDOD1	5.000				
159	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3510		1607337-06A	SAMPICPMS_TSDOD1	5.000				
160	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1101		RINSE	CCB ICPMS_TW	1.000				
161	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3511		1607337-07A	SAMPICPMS_TSDOD1	5.000				
162	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3512		1607337-08A	SAMPICPMS_TSDOD1	5.000				
163	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3308		1607337-09A	SAMPICPMS_TSDOD1	5.000				

	Method	Type	Vial	Data File	Sample	Comment	Dil/Lvl	ISTD Conc	Action on Failure	Skip	Result
164	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3309		1607337-11A	SAMPICPMS_TSDOD1	5.000				
165	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	SampleS	3310		1607337-12A	SAMPICPMS_TSDOD1	5.000				
166	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCV1	1307		CCV7-160810	CCV ICPMS_TW	1.000				
167	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		CCB7-160810	CCB ICPMS_TW	1.000				
168	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	LCVL5	2512		LCVL7-160810	LCVLICPMS_TW	1.000				
169	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		CCB7-160810	CCB ICPMS_TW	1.000				
170	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1101		RINSE	CCB ICPMS_TW	1.000				
171	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1102		RINSE	CCB ICPMS_TW	1.000				
172	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1103		RINSE	CCB ICPMS_TW	1.000				
173	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1104		RINSE	CCB ICPMS_TW	1.000				
174	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1105		RINSE	CCB ICPMS_TW	1.000				
175	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1101		RINSE	CCB ICPMS_TW	1.000				
176	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1102		RINSE	CCB ICPMS_TW	1.000				
177	C:\ICPCHEM\1\METHODS\DHL_3Fe.M	CCB	1103		RINSE	CCB ICPMS_TW	1.000				
178		Keyword		StandBy							
179		Keyword		SMPLEND	End of SMPL						
180		Keyword		End	End of Sequence						
181		Keyword		CCVBEG	Start of CCV						
182		Keyword		CCVEND	End of CCV						
183		Keyword		BLKBEG	Start of BLANK						
184		Keyword		BLKEND	End of BLANK						
185		Keyword		ERRBEG	Start of ERRTERM						
186		Keyword		ERREND	End of ERRTERM						

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **8/8/2016 2:31:10 PM**
Digestion:
Prep End Date:

Prep Batch **76717** Prep Code: **3050_IDOD** Technician: **Sydney Powers**

Prep Factor Units: **mL/g**

Equipment List
Hot Block #3
Thermometer #71
Balance #20
Pipette #P-01
Pipette#-P-09

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607317-27A	Soil		1.05	50	50.000	2 of 3	
1607317-27AMS	Soil		1.10	50	50.000	2 of 3	
1607317-27AMSD	Soil		1.06	50	50.000	2 of 3	
1607317-31A	Soil		1.06	50	50.000	1 of 1	
1607317-32A	Soil		1.14	50	50.000	1 of 1	
1607317-33A	Soil		1.01	50	50.000	1 of 1	
1607317-34A	Soil		1.16	50	50.000	1 of 1	
1607317-35A	Soil		1.01	50	50.000	1 of 1	
1607317-36A	Soil		1.03	50	50.000	1 of 1	
1607317-37A	Soil		1.04	50	50.000	1 of 1	
1607317-38A	Soil		1.04	50	50.000	1 of 1	
1607337-01A	Soil		1.05	50	50.000	1 of 1	
1607337-02A	Soil		1.02	50	50.000	1 of 1	
1607337-03A	Soil		1.08	50	50.000	1 of 1	
1607337-04A	Soil		1.02	50	50.000	1 of 1	
1607337-05A	Soil		1.04	50	50.000	1 of 1	
1607337-06A	Soil		1.04	50	50.000	1 of 1	
1607337-07A	Soil		1.05	50	50.000	1 of 1	
1607337-08A	Soil		1.03	50	50.000	1 of 1	
1607337-09A	Soil		1.14	50	50.000	1 of 1	
1607337-11A	Soil		1.06	50	50.000	1 of 1	
1607337-12A	Soil		1.08	50	50.000	1 of 1	
LCS-76717	Soil		1	50	50.000	of	
LCSD-76717	Soil		1	50	50.000	of	
MB-76717	Soil		1	50	50.000	of	

Number	Reagent Name	Amt	Units	Exp. Da
10056	Digestion Vessels	1	vessel	02/10/2026
10527	Hydrogen Peroxide, 30%	3	ml	07/09/2017
10543	Nitric Acid (Trace Metals)	10	ml	01/10/2017
10544	Hydrochloric Acid (trace metal grade)	5	ml	01/10/2017

Spk ID	Spike Name	SampType	Amt (mL or g)	Exp. Date
MET-150914-10	AL PRIMARY STD 1000 PPM	LCS/MS/MSD	0.25	10/01/2016
MET-150914-9	FE PRIMARY STD 1000 PPM	LCS/MS/MSD	0.25	10/01/2016
MET-SPIKE-160701-3	2500 PPM NATURALS SPIKE	LCS/MS/MSD	0.5	09/29/2016
MET-SPIKE-160715-4B	50 PPM Sb+Ag CAL	LCS/MS/MSD	1	10/13/2016
MET-SPIKE-160715-5B	50 PPM Custom+Sn,Ti,B,Mo,Sr CAL	LCS/MS/MSD	1	10/13/2016

7:21 - 7:31
7:32 - 9:32
9:53 - 11:53
12:10 - 12:25

8/9/16

REVIEWED BY
By Janice Whitt at 10:44:02 AM, 8/15/2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **7/28/2016 4:31:01 PM**
Digestion: **Start: 7/28/2016 4:45:00 PM / Stop: 8/1/2016 10:00:00 AM**
Prep End Date: **8/2/2016 10:00:00 AM**

Prep Batch **76551** Prep Code: **ISM2MM_PREP** Technician: **Jennifer Barker** Prep Factor Units: **mL/**

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607317-01A	Soil		0	0	#Num!	1 of 1	
SS							
1607317-02A	Soil		0	0	#Num!	1 of 1	
SS							
1607317-03A	Soil		0	0	#Num!	1 of 1	
Sieve only hard clay							
1607317-04A	Soil		0	0	#Num!	1 of 1	
Sieve only hard clay							
1607317-05A	Soil		0	0	#Num!	1 of 1	
SS							
1607317-06A	Soil		0	0	#Num!	1 of 1	
SS							
1607317-07A	Soil		0	0	#Num!	1 of 1	
Sieve only hard clay							
1607317-08A	Soil		0	0	#Num!	1 of 1	
Sieve only hard clay							
1607317-09A	Soil		0	0	#Num!	of 3	
SS MS/MSD							
1607317-10A	Soil		0	0	#Num!	1 of 1	
SS							
1607317-11A	Soil		0	0	#Num!	1 of 1	
Sieve only hard clay							
1607317-12A	Soil		0	0	#Num!	1 of 1	
Sieve only hard clay							
1607317-14A	Soil		0	0	#Num!	1 of 1	
SS							

REVIEWED BY
By Janice Whitt at 10:44:15 AM, 8/15/2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **7/28/2016 4:31:01 PM**
Digestion: **Start: 7/28/2016 4:45:00 PM / Stop: 8/1/2016 10:00:00 AM**
Prep End Date: **8/2/2016 10:00:00 AM**

Prep Batch **76551** Prep Code: **ISM2MM_PREP** Technician: **Jennifer Barker** Prep Factor Units: **mL/**

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607317-15A	Soil		0	0	#Num!	1 of 1	
SS							
1607317-16A	Soil		0	0	#Num!	1 of 1	
SS							
1607317-17A	Soil		0	0	#Num!	1 of 1	
SS							
1607317-18A	Soil		0	0	#Num!	1 of 1	
SS							
1607317-19A	Soil		0	0	#Num!	1 of 1	
SS							
1607317-20A	Soil		0	0	#Num!	1 of 1	
SS							
1607317-21A	Soil		0	0	#Num!	1 of 1	
SS							
1607317-22A	Soil		0	0	#Num!	1 of 1	
SS							
1607317-23A	Soil		0	0	#Num!	1 of 1	
SS							
1607317-24A	Soil		0	0	#Num!	1 of 1	
SS							
1607317-25A	Soil		0	0	#Num!	1 of 1	
SS							
1607317-27A	Soil		0	0	#Num!	of 3	
SS MS/MSD							
1607317-28A	Soil		0	0	#Num!	1 of 1	
SS							

REVIEWED BY
By Janice Whitt at 10:44:18 AM, 8/15/2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **7/28/2016 4:31:01 PM**
Digestion: **Start: 7/28/2016 4:45:00 PM / Stop: 8/1/2016 10:00:00 AM**
Prep End Date: **8/2/2016 10:00:00 AM**

Prep Batch **76551** Prep Code: **ISM2MM_PREP** Technician: **Jennifer Barker**

Prep Factor Units: **mL/**

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607317-29A	Soil		0	0	#Num!	1 of 1	
SS							
1607317-30A	Soil		0	0	#Num!	1 of 1	
Sieve only hard clay							
1607317-31A	Soil		0	0	#Num!	1 of 1	
SS							
1607317-32A	Soil		0	0	#Num!	1 of 1	
SS							
1607317-33A	Soil		0	0	#Num!	1 of 1	
SS							
1607317-34A	Soil		0	0	#Num!	1 of 1	
Sieve only hard clay							
1607317-35A	Soil		0	0	#Num!	1 of 1	
SS							
1607317-36A	Soil		0	0	#Num!	1 of 1	
SS							
1607317-37A	Soil		0	0	#Num!	1 of 1	
SS							
1607317-38A	Soil		0	0	#Num!	1 of 1	
Sieve only hard clay							

REVIEWED BY
By Janice Whitt at 10:44:22 AM, 8/15/2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **7/29/2016 3:00:00 PM**
Digestion: **Start: 7/29/2016 3:20:00 PM / Stop: 8/2/2016 10:15:00 AM**
Prep End Date: **8/2/2016 4:00:00 PM**

Prep Batch **76570** Prep Code: **ISM2MM_PREP** Technician: **Jennifer Barker**

Prep Factor Units: **mL/**

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607337-01A	Soil		0	0	#Num!	1 of 1	
SS							
1607337-02A	Soil		0	0	#Num!	1 of 1	
SS							
1607337-03A	Soil		0	0	#Num!	1 of 1	
SS							
1607337-04A	Soil		0	0	#Num!	1 of 1	
SS							
1607337-05A	Soil		0	0	#Num!	1 of 1	
SS							
1607337-06A	Soil		0	0	#Num!	1 of 1	
SS							
1607337-07A	Soil		0	0	#Num!	1 of 1	
SS							
1607337-08A	Soil		0	0	#Num!	1 of 1	
SS							
1607337-09A	Soil		0	0	#Num!	1 of 1	
SS							
1607337-10A	Soil		0	0	#Num!	of 3	
SS MS/MSD							
1607337-11A	Soil		0	0	#Num!	1 of 1	
SS							
1607337-12A	Soil		0	0	#Num!	1 of 1	
SS							
1607337-14A	Soil		0	0	#Num!	1 of 1	
SS							

REVIEWED BY
By Janice Whitt at 10:44:31 AM, 8/15/2016

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **7/29/2016 3:00:00 PM**
Digestion: **Start: 7/29/2016 3:20:00 PM / Stop: 8/2/2016 10:15:00 AM**
Prep End Date: **8/2/2016 4:00:00 PM**

Prep Batch **76570** Prep Code: **ISM2MM_PREP** Technician: **Jennifer Barker**

Prep Factor Units: **mL/**

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #	Cleanup
1607337-15A SS	Soil		0	0	#Num!	1 of 1	
1607337-16A SS	Soil		0	0	#Num!	1 of 1	
1607337-17A SS	Soil		0	0	#Num!	1 of 1	
1607337-18A SS	Soil		0	0	#Num!	1 of 1	
1607337-19A SS	Soil		0	0	#Num!	1 of 1	
1607337-20A SS	Soil		0	0	#Num!	1 of 1	
1607337-21A SS	Soil		0	0	#Num!	1 of 1	
1607337-22A SS	Soil		0	0	#Num!	1 of 1	
1607337-23A SS	Soil		0	0	#Num!	1 of 1	
1607337-24A SS	Soil		0	0	#Num!	1 of 1	
1607337-25A SS	Soil		0	0	#Num!	1 of 1	

REVIEWED BY
By Janice Whitt at 10:44:33 AM, 8/15/2016

MECHANICAL VOLUMETRIC PIPETTE VOLUME DAILY CHECK - DOD QSM 5.0

ANALYST:	SP	**BALANCE #:**	26	
TEST DATE:	08/09/2016	**Water is at Room Temperatue (70-73°F) / (21-23°C)**		
PIPETTER LAB ID:	P-01, P-09	**WATER TEMP (°C):**	**21-23°C**	
TEST VOLUME:	See Below	**WATER DENSITY:**	0.998	(0.9980-0.9976)

REFERENCE:	DoD QSM 5.0
# of REPLICATES:	3
LABWARE TYPE:	MECHANICAL VOLUMETRIC PIPETTE
FREQUENCY:	DAILY BEFORE USE
MEAN CRITERIA:	± 2% OF NOMINAL VOLUME (VOLUME OF USE/TEST VOLUME)
RSD CRITERIA:	< 1% OF NOMINAL VOLUME (BASED ON MINIMUM OF 3 REPLICATE MEASUREMENTS)

1) RECORD ROOM AND WATER TEMPERATURE
2) TARE VESSEL ON BALANCE. ADD TEST VOLUME.
3) WEIGH 3 REPLICATES AT THE TEST VOLUME.
4) DETERMINE TOTAL WT.
5) CALCULATE VOLUME OF H2O AT °C (in mL)

% TEST VOL = Volume of H2O at °C/Test Volume * 100

%RSD = STDEV (Mean Volume)/AVERAGE (Mean Volume) *100

VOLUME OF H2O AT °C = TOTAL WT / WATER DENSITY

					BIAS	PRECISION
PIPETTE ID: P-01	**TEST VOLUME (mL)**	**TOTAL WT (g)**	**Volume of H_2O at °C**	**% TEST VOL (98-102%)**	**MEAN CRITERIA (± 2%)**	**% RSD Calculated**
1	5.00	4.9471	4.9570	99.14	PASS	RSD MUST BE ≤ 1% OF TEST VOLUME VALUE
2		4.9669	4.9769	99.54		
3		4.9539	4.9638	99.28		
AVERAGE (MEAN)		**4.956**	**4.966**	**99.32**		**0.203**
						PASS

PIPETTE ID: P-09	**TEST VOLUME (mL)**	**TOTAL WT (g)**	**Volume of H_2O at °C**	**% TEST VOL (98-102%)**	**MEAN CRITERIA (± 2%)**	**% RSD Calculated**
1	0.20	0.2026	0.2030	101.50	PASS	RSD MUST BE ≤ 1% OF TEST VOLUME VALUE
2		0.2018	0.2022	101.10		
3		0.2018	0.2022	101.10		
AVERAGE (MEAN)		**0.202**	**0.202**	**101.24**		**0.229**
						PASS

PIPETTE ID:	**TEST VOLUME (mL)**	**TOTAL WT (g)**	**Volume of H_2O at °C**	**% TEST VOL (98-102%)**	**MEAN CRITERIA (± 2%)**	**% RSD Calculated**
1						RSD MUST BE ≤ 1% OF TEST VOLUME VALUE
2						
3						
AVERAGE (MEAN)						

8/9/16
Analyst / Date

REVIEWED BY
By Janice Whitt at 10:44:10 AM, 8/15/2016
Review and Approved / Date

DHL Analytical, Inc.

PREP BATCH REPORT

Prep Start Date: **8/8/2016 2:31:10 PM**
Digestion: **Start: 8/9/2016 7:21:00 AM / Stop: 8/9/2016 12:25:00 PM**
Prep End Date: **8/9/2016 4:12:53 PM**

Prep Batch **76717** Prep Code: **3050_IDOD** Technician: **Sydney Powers**

Prep Factor Units: **mL/g**

Equipment List

- Hot Block #3
- Thermometer #71
- Balance #20
- Pipette #P-01
- Pipette#-P-09

Sample ID	Matrix	pH	SampAmt	Fin Vol	Factor	Bottle #		
1607317-27A	Soil		1.05	50	47.619		of	3
1607317-27A MS	Soil		1.1	50	45.455		of	
1607317-27A MSD	Soil		1.06	50	47.170		of	
1607317-27A PDS	Soil		1.05	50	47.619		of	
1607317-27A SD	Soil		1.05	50	47.619		of	
1607317-31A	Soil		1.06	50	47.170	1	of	1
1607317-32A	Soil		1.14	50	43.860	1	of	1
1607317-33A	Soil		1.01	50	49.505	1	of	1
1607317-34A	Soil		1.16	50	43.103	1	of	1
1607317-35A	Soil		1.01	50	49.505	1	of	1
1607317-36A	Soil		1.03	50	48.544	1	of	1
1607317-37A	Soil		1.04	50	48.077	1	of	1
1607317-38A	Soil		1.04	50	48.077	1	of	1
1607337-01A	Soil		1.05	50	47.619	1	of	1
1607337-02A	Soil		1.02	50	49.020	1	of	1
1607337-03A	Soil		1.08	50	46.296	1	of	1
1607337-04A	Soil		1.02	50	49.020	1	of	1
1607337-05A	Soil		1.04	50	48.077	1	of	1
1607337-06A	Soil		1.04	50	48.077	1	of	1
1607337-07A	Soil		1.05	50	47.619	1	of	1
1607337-08A	Soil		1.03	50	48.544	1	of	1
1607337-09A	Soil		1.14	50	43.860	1	of	1
1607337-11A	Soil		1.06	50	47.170	1	of	1
1607337-12A	Soil		1.08	50	46.296	1	of	1
LCS-76717	Soil		1	50	50.000		of	
LCSD-76717	Soil		1	50	50.000		of	
MB-76717	Soil		1	50	50.000		of	

Number	Reagent Name	Amt	Units	Exp. Da
10056	Digestion Vessels	1	vessel	02/10/2026
10527	Hydrogen Peroxide, 30%	3	ml	07/09/2017
10543	Nitric Acid (Trace Metals)	10	ml	01/10/2017
10544	Hydrochloric Acid (trace metal grade)	5	ml	01/10/2017

Spk ID	Spike Name	SampType	Amt (mL or g)	Exp. Date
MET-150914-10	AL PRIMARY STD 1000 PPM	LCS/MS/MSD	0.25	10/01/2016
MET-150914-9	FE PRIMARY STD 1000 PPM	LCS/MS/MSD	0.25	10/01/2016
MET-SPIKE-160701-3	2500 PPM NATURALS SPIKE	LCS/MS/MSD	0.5	09/29/2016
MET-SPIKE-160715-4B	50 PPM Sb+Ag CAL	LCS/MS/MSD	1	10/13/2016
MET-SPIKE-160715-5B	50 PPM Custom+Sn,Ti,B,Mo,Sr CAL	LCS/MS/MSD	1	10/13/2016

REVIEWED BY
By Janice Whitt at 10:44:07 AM, 8/15/2016

MECHANICAL VOLUMETRIC PIPETTE VOLUME DAILY CHECK - DOD QSM 5.0

ANALYST:	CVD	**BALANCE #:**	30	
TEST DATE:	08/10/2016	**Water is at Room Temperatue (70-73°F) / (21-23°C)**		
PIPETTER LAB ID:	See Below	**WATER TEMP (°C):**	**21-23°C**	
TEST VOLUME:	See Below	**WATER DENSITY:**	**0.998**	**(0.9980-0.9976)**

REFERENCE:	DoD QSM 5.0
# of REPLICATES:	3
LABWARE TYPE:	MECHANICAL VOLUMETRIC PIPETTE
FREQUENCY:	DAILY BEFORE USE
MEAN CRITERIA:	± 2% OF NOMINAL VOLUME (VOLUME OF USE/TEST VOLUME)
RSD CRITERIA:	< 1% OF NOMINAL VOLUME (BASED ON MINIMUM OF 3 REPLICATE MEASUREMENTS)

1) RECORD ROOM AND WATER TEMPERATURE
2) TARE VESSEL ON BALANCE. ADD TEST VOLUME.
3) WEIGH 3 REPLICATES AT THE TEST VOLUME.
4) DETERMINE TOTAL WT.
5) CALCULATE VOLUME OF H2O AT °C (in mL)

% TEST VOL = Volume of H2O at °C/Test Volume * 100

%RSD = STDEV (Mean Volume)/AVERAGE (Mean Volume) *100

VOLUME OF H2O AT °C = TOTAL WT * WATER DENSITY

					BIAS	PRECISION
PIPETTE ID: P-31	**TEST VOLUME (mL)**	**TOTAL WT (g)**	**Volume of H_2O at °C**	**% TEST VOL (98-102%)**	**MEAN CRITERIA (± 2%)**	**% RSD Calculated**
1	**4.00**	4.0017	3.9937	99.84	**PASS**	**RSD MUST BE ≤ 1% OF TEST VOLUME VALUE**
2		4.0056	3.9976	99.94		
3		4.0028	3.9948	99.87		
AVERAGE (MEAN)		**4.003**	**3.995**	**99.88**		**0.050**
						PASS

PIPETTE ID: P-21	**TEST VOLUME (mL)**	**TOTAL WT (g)**	**Volume of H_2O at °C**	**% TEST VOL (98-102%)**	**MEAN CRITERIA (± 2%)**	**% RSD Calculated**
1	**1.00**	1.0036	1.0016	100.16	**PASS**	**RSD MUST BE ≤ 1% OF TEST VOLUME VALUE**
2		1.0024	1.0004	100.04		
3		1.0013	0.9993	99.93		
AVERAGE (MEAN)		**1.002**	**1.000**	**100.04**		**0.115**
						PASS

PIPETTE ID: P-39	**TEST VOLUME (mL)**	**TOTAL WT (g)**	**Volume of H_2O at °C**	**% TEST VOL (98-102%)**	**MEAN CRITERIA (± 2%)**	**% RSD Calculated**
1	**0.500**	0.5049	0.5039	100.78	**PASS**	**RSD MUST BE ≤ 1% OF TEST VOLUME VALUE**
2		0.5051	0.5041	100.82		
3		0.5038	0.5028	100.56		
AVERAGE (MEAN)		**0.505**	**0.504**	**100.72**		**0.139**
						PASS

CVB 8/10/16
Analyst / Date

REVIEWED BY
By Janice Whitt at 10:44:40 AM, 8/15/2016
Review and Approved / Date

Calibration Summary Report

Instrument: ICPMS3
Current Method: C:\ICPCHEM\1\METHODS\DHL_3Fe.M
Calibration: C:\ICPCHEM\1\CALIB\DHL_3FE.c
Last Update: Aug 10 2016 02:34 pm
Cal Type: Y=aX+[blank]

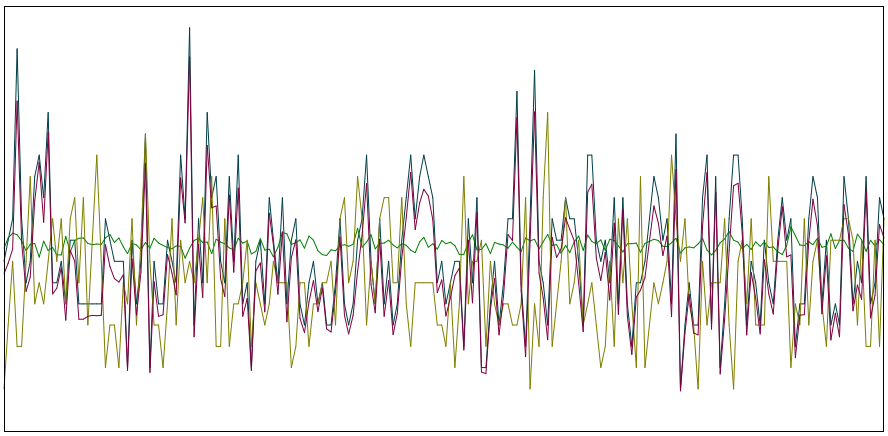
Standard	Date Acquired	File
BLANK STD 1	Aug 10 2016 11:23 am	c:\icpchem\1\data\16h10k01.b\006calb.d\
L2-160810	Aug 10 2016 11:29 am	c:\icpchem\1\data\16h10k01.b\007cals.d\
L-160810	Aug 10 2016 11:35 am	c:\icpchem\1\data\16h10k01.b\008cals.d\
10X-160810	Aug 10 2016 11:41 am	c:\icpchem\1\data\16h10k01.b\009cals.d\
5X-160810	Aug 10 2016 11:47 am	c:\icpchem\1\data\16h10k01.b\010cals.d\
2X-160810	Aug 10 2016 11:53 am	c:\icpchem\1\data\16h10k01.b\011cals.d\

Element Name	Corr Coef	Coef A	Coef B	Lvl 2	Lvl 6	Lvl 7	L7 %R	Lvl 8	L8 %R
Li	1.0000	0.2521	0.02647	1.02	251	495		2001	
Be	0.9998	0.08084	0.001981	1.02	258	495	99%	--------	######
B	1.0000	0.06709	0.1279	1.03	246	506	101%	1,999	100%
Na	0.9999	0.3114	16.92	21.48	5,224	10,290	103%	24,840	99%
Mg	0.9999	0.1379	0.6385	20.85	4,942	10,290	103%	24,890	100%
Al	1.0000	0.03346	0.4768	19.83	4,968	10,020	100%	--------	######
K	1.0000	0.07929	5.958	21.58	4,873	9,826	98%	25,100	100%
Ca	0.9999	0.009081	0.3945	22.79	5,134	10,200	102%	24,900	100%
Ti	0.9999	0.03024	0.003928	0.77	245	480	96%	2,006	100%
V	1.0000	1.163	0.3249	1.05	247	488	98%	2,003	100%
Cr	0.9999	1.535	0.173	1.01	249	--------	######	--------	######
Mn	1.0000	0.6303	0.06545	1.05	248	496	99%	2,001	100%
Fe	1.0000	2.099	18.68	19.83	5,019	9,972	100%	--------	######
Co	1.0000	4.784	0.09645	1.04	252	519	104%	1,995	100%
Ni	1.0000	1.394	0.07902	1.03	249	492	98%	2,002	100%
Cu	1.0000	3.723	0.4669	1.05	255	504	101%	1,998	100%
Zn	1.0000	0.3847	0.2802	1.28	261	511	102%	1,996	100%
As	1.0000	0.2316	0.1742	1.01	252	499	100%	2,000	100%
Se	1.0000	0.01415	0.009581	1.21	251	500	100%	2,000	100%
Sr	1.0000	0.3439	0.06934	1.01	251	495	99%	2,001	100%
Mo	1.0000	0.05919	0.002267	0.98	248	502	100%	--------	######
Ag	1.0000	0.1533	0.002021	1.00	252	499	100%	--------	######
Cd	1.0000	0.0328	0.0007325	0.97	247	489	98%	2,003	100%
Sn	1.0000	0.09083	0.007435	0.95	243	511	102%	1,998	100%
Sb	0.9999	0.1069	0.002337	0.95	245	503	101%	--------	######
Ba	0.9999	0.04217	0.003401	0.91	240	482	96%	2,006	100%
Tl	1.0000	0.3331	0.006798	0.95	255	502	100%	1,999	100%
Pb	1.0000	0.4539	0.0208	0.99	248	506	101%	1,999	100%

REVIEWED BY
By Janice Whitt at 11:07:05 AM, 8/11/2016

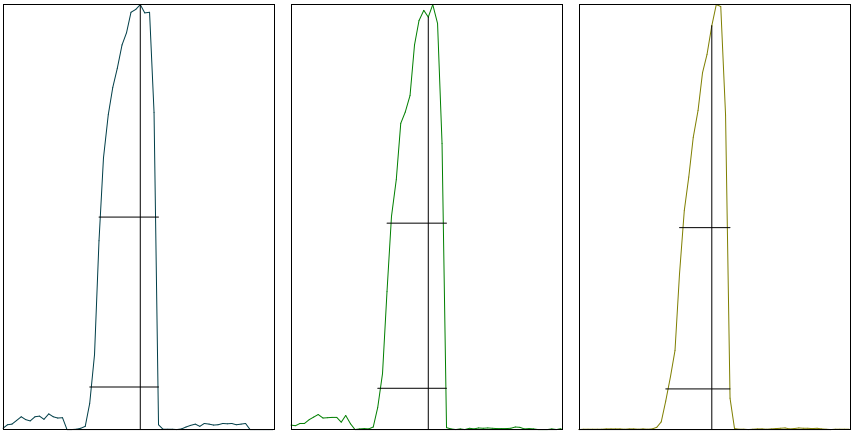
Tune Report

Tune File : He.U
Comment :



Integration Time:	0.1000 sec	
Sampling Period:	0.3100 sec	
n:	200	
Oxide:	156/140	0.385%
Doubly Charged:	70/140	2.643%

m/z	Range	Count	Mean	RSD%	Background
51	20	10.0	8.4	35.34	0.50
59	5,000	2195.0	2199.1	3.09	0.90
75	20	10.0	7.1	36.32	1.20
51/59	1	0.456%	0.382%	35.16	



m/z:	59	89	205
Height:	2,270	1,125	3,573
Axis:	59.05	89.05	205.00
W-50%:	0.65	0.65	0.55
W-10%:	0.7500	0.7500	0.700

Integration Time:	0.1000 sec
Acquisition Time:	22.5600 sec

Y axis : Linear

Generated : Aug 10, 2016 10:18:09
Printed : Aug 10, 2016 10:18:11

Tune Report

Tune File : He.U
Comment :

Tuning Parameters

===Plasma Condition===				===Ion Lenses===				===Q-Pole Parameters===			
RF Power	:	1600	W	Extract 1	:	0	V	AMU Gain	:	124	
RF Matching	:	1.6	V	Extract 2	:	-150	V	AMU Offset	:	120	
Smpl Depth	:	9	mm	Omega Bias-ce	:	-20	V	Axis Gain	:	0.9993	
Torch-H	:	0	mm	Omega Lens-ce	:	0	V	Axis Offset	:	-0.03	
Torch-V	:	0.8	mm	Cell Entrance	:	-40	V	QP Bias	:	-14.6	V
Carrier Gas	:	1.2	L/min	QP Focus	:	-10	V				
Makeup Gas	:	0	L/min	Cell Exit	:	-40	V	===Detector Parameters===			
Optional Gas	:	---	%					Discriminator	:	8	mV
Nebulizer Pump	:	0.1	rps	===Octopole Parameters===				Analog HV	:	1750	V
Sample Pump	:	---	rps	OctP RF	:	170	V	Pulse HV	:	1520	V
S/C Temp	:	2	degC	OctP Bias	:	-16	V				

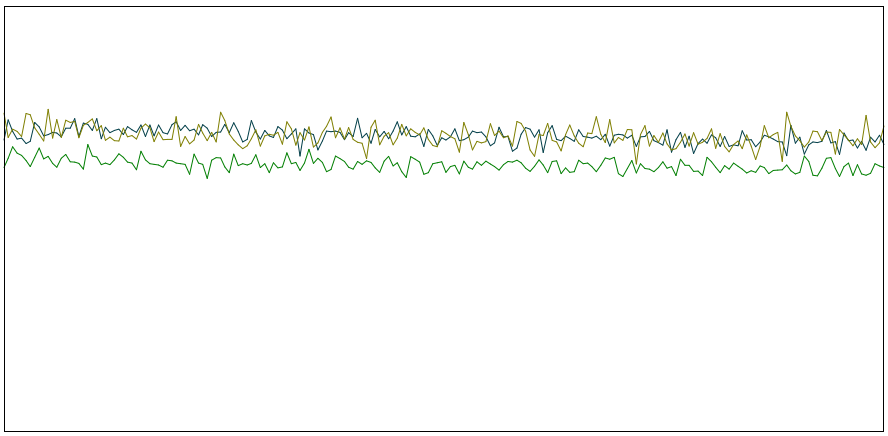
===Reaction Cell===

Reaction Mode	:	ON									
H2 Gas	:	0	mL/min	He Gas	:	4.8	mL/min	Optional Gas	:	---	%

Generated : Aug 10, 2016 10:18:09
Printed : Aug 10, 2016 10:18:13

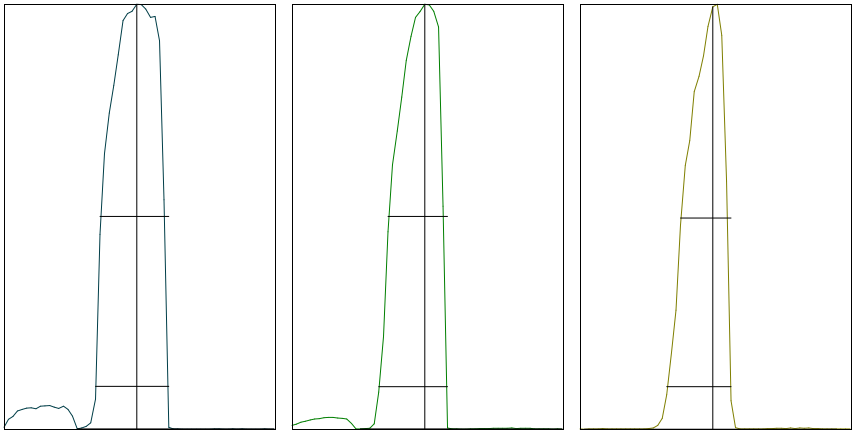
Tune Report

Tune File : nogas.u
Comment :



Integration Time:	0.1000 sec	
Sampling Period:	0.8200 sec	
n:	200	
Oxide:	156/140	1.004%
Doubly Charged:	70/140	3.091%

m/z	Range	Count	Mean	RSD%	Background
7	10,000	6748.0	6954.2	2.55	3.50
89	20,000	12414.0	12546.5	2.35	7.90
205	10,000	7187.0	6955.3	3.35	18.10
156/140	2	0.976%	0.984%	11.55	
70/140	5	2.759%	2.987%	12.13	
63	10,000	9316.0	9605.4	2.52	5.30
23	50,000	38173.0	40461.4	7.69	3.60



m/z:	7	89	205
Height:	6,849	12,456	7,056
Axis:	7.00	89.00	205.00
W-50%:	0.75	0.65	0.55
W-10%:	0.800	0.7500	0.700

Integration Time:	0.1000 sec
Acquisition Time:	22.7600 sec

Y axis : Linear

Generated : Aug 10, 2016 10:11:16
Printed : Aug 10, 2016 10:11:18

Tune File : nogas.u
Comment :

Tuning Parameters

===Plasma Condition===				===Ion Lenses===				===Q-Pole Parameters===			
RF Power	:	1600	W	Extract 1	:	0	V	AMU Gain	:	124	
RF Matching	:	1.6	V	Extract 2	:	-150	V	AMU Offset	:	120	
Smpl Depth	:	9	mm	Omega Bias-ce	:	-22	V	Axis Gain	:	0.9993	
Torch-H	:	0	mm	Omega Lens-ce	:	-1	V	Axis Offset	:	-0.03	
Torch-V	:	0.8	mm	Cell Entrance	:	-26	V	QP Bias	:	-3	V
Carrier Gas	:	1.2	L/min	QP Focus	:	0	V				
Makeup Gas	:	0	L/min	Cell Exit	:	-40	V	===Detector Parameters===			
Optional Gas	:	---	%					Discriminator	:	8	mV
Nebulizer Pump	:	0.1	rps	===Octopole Parameters===				Analog HV	:	1750	V
Sample Pump	:	---	rps	OctP RF	:	170	V	Pulse HV	:	1520	V
S/C Temp	:	2	degC	OctP Bias	:	-6	V				

===Reaction Cell===

Reaction Mode	:	OFF									
H2 Gas	:	0	mL/min	He Gas	:	0	mL/min	Optional Gas	:	---	%

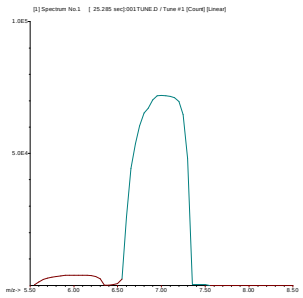
Generated : Aug 10, 2016 10:11:16
Printed : Aug 10, 2016 10:11:21

6020 QC Tune Report

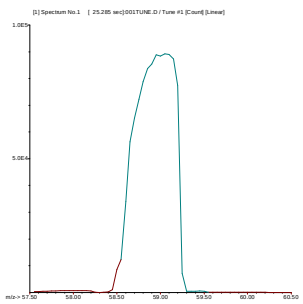
Data File: C:\ICPCHEM\1\DATA\16H10k00.B\001TUNE.D
Date Acquired: Aug 10 2016 10:25 am
Acq. Method: TN6020.M
Operator: KL
Sample Name: TUNE CHECK
Misc Info:
Vial Number: 1301
Current Method: C:\ICPCHEM\1\METHODS\TN6020.M

RSD (%)

Element	Actual	Required	Flag
7 Li	1.73	5.00	
59 Co	1.52	5.00	
115 In	0.92	5.00	
205 Tl	0.90	5.00	



7 Li
Mass Calib.
Actual: 7.05
Required: 6.90 - 7.10
Flag:
Peak Width
Actual: 0.70
Required: 0.90
Flag:



59 Co
Mass Calib.
Actual: 59.05
Required: 58.90 - 59.10
Flag:
Peak Width
Actual: 0.60
Required: 0.90
Flag:

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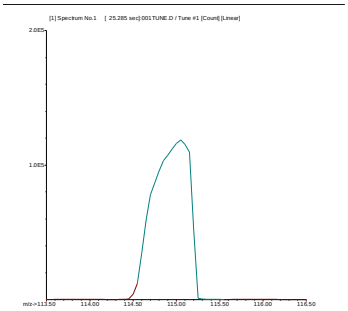
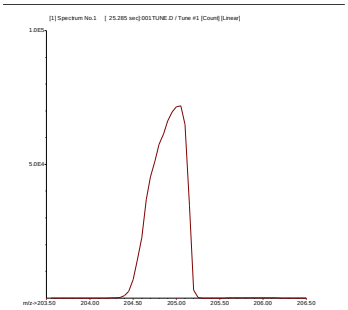


115 In
Mass Calib.
Actual: 115.05
Required: 114.90 - 115.10
Flag:
Peak Width
Actual: 0.60
Required: 0.90
Flag:



205 Tl
Mass Calib.
Actual: 205.00
Required: 204.90 - 205.10
Flag:
Peak Width
Actual: 0.60
Required: 0.90
Flag:

REVIEWED BY
By Janice Whitt at 11:07:32 AM, 8/11/2016

Calibration Blank QC Report

Acq. Method: DHL_3Fe.M Sample Name: BLANK STD 1
Operator: KL Instrument: ICPMS3
Last Cal. Update: Aug 10 2016 11:27 am
Date Acquired: Aug 10 2016 11:23 am

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)
6	Li	2	---	36.77	P	19.13	52.03
7	Li	2	45	771.16	P	25.02	3.24
9	Be	2	45	57.78	P	21.43	37.09
11	B	2	45	3726.25	P	104.10	2.79
23	Na	1	45	13352.08	P	101.40	0.76
24	Mg	1	45	503.36	P	72.19	14.34
27	Al	1	45	376.01	P	41.40	11.01
39	K	1	45	4699.97	P	296.10	6.30
44	Ca	2	45	11491.50	P	244.80	2.13
45	Sc	1	---	157844.09	P	1644.00	1.04
45	Sc	2	---	5827273.00	A	60900.00	1.05
47	Ti	1	45	3.11	P	3.36	107.87
51	V	1	45	256.45	P	8.47	3.30
51	V	2	---		P		
52	Cr	1	45	136.45	P	14.63	10.72
55	Mn	1	45	51.56	P	14.26	27.66
56	Fe	1	72	8091.08	P	747.10	9.23
59	Co	1	72	41.78	P	12.60	30.16
60	Ni	1	72	34.22	P	0.77	2.25
60	Ni	2	---		P		
63	Cu	1	72	202.23	P	25.80	12.76
63	Cu	2	---		P		
66	Zn	1	72	121.34	P	11.85	9.77
66	Zn	2	---		P		
72	Ge	1	---	86621.49	P	464.30	0.54
72	Ge	2	---		A		
75	As	1	72	75.44	P	2.32	3.08
78	Se	1	72	4.15	P	0.68	16.37
88	Sr	2	###	2175.85	P	30.05	1.38
95	Mo	2	###	71.11	P	19.25	27.07
107	Ag	2	###	63.34	P	21.86	34.51
111	Cd	2	###	23.01	P	9.54	41.47
115	In	2	---	6276207.00	A	44580.00	0.71
118	Sn	2	###	233.35	P	37.57	16.10
121	Sb	2	###	73.34	P	5.77	7.87
137	Ba	2	###	106.67	P	8.82	8.27
205	Tl	2	###	151.12	P	8.39	5.55
208	Pb	2	###	462.25	P	53.99	11.68
209	Bi	2	---	4446754.00	A	35290.00	0.79

Calibration Standard QC Report

Acq. Method: DHL_3Fe.M Sample Name: L2-160810
Operator: KL Instrument: ICPMS3
Date Acquired: Aug 10 2016 11:29 am
Last Cal. Update: Aug 10 2016 11:27 am

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)	Flag
6	Li	2	---	-328.35	P	19.46	5.93	ISFail
7	Li	2	45	8137.34	P	35.37	0.43	
9	Be	2	45	2439.22	P	57.39	2.35	
11	B	2	45	5671.50	P	203.50	3.59	
23	Na	1	45	18414.17	P	362.80	1.97	
24	Mg	1	45	2740.42	P	55.08	2.01	
27	Al	1	45	889.83	P	25.03	2.81	
39	K	1	45	5981.68	P	116.20	1.94	
44	Ca	2	45	17307.85	P	1365.00	7.89	
45	Sc	1	---	156019.70	P	2042.00	1.31	
45	Sc	2	---	5753219.00	A	103700.00	1.80	
47	Ti	1	45	21.33	P	3.53	16.54	
51	V	1	45	1208.08	P	57.62	4.77	
51	V	2	---		P			
52	Cr	1	45	1349.43	P	65.85	4.88	
55	Mn	1	45	565.35	P	77.88	13.78	
56	Fe	1	72	25863.22	P	777.10	3.00	
59	Co	1	72	2173.56	P	69.90	3.22	
60	Ni	1	72	649.81	P	44.81	6.90	
60	Ni	2	---		P			
63	Cu	1	72	1873.06	P	47.34	2.53	
63	Cu	2	---		P			
66	Zn	1	72	330.68	P	48.66	14.72	
66	Zn	2	---		P			
72	Ge	1	---	85788.02	P	840.50	0.98	
72	Ge	2	---		A			
75	As	1	72	174.74	P	4.47	2.56	
78	Se	1	72	11.48	P	1.39	12.10	
88	Sr	2	115	12990.83	P	150.40	1.16	
95	Mo	2	115	1889.12	P	177.40	9.39	
107	Ag	2	115	4866.74	P	56.82	1.17	
111	Cd	2	115	1017.47	P	47.71	4.69	
115	In	2	---	6256392.00	A	51380.00	0.82	
118	Sn	2	115	2939.38	P	130.90	4.45	
121	Sb	2	115	3259.47	P	56.41	1.73	
137	Ba	2	115	1307.91	P	122.80	9.39	
205	Tl	2	209	7082.51	P	241.20	3.41	
208	Pb	2	209	10285.66	P	46.71	0.45	
209	Bi	2	---	4395361.00	A	35260.00	0.80	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-328.35	5.93	36.77	-893.0	70 - 120	ISFail
45	Sc	1	156019.70	1.31	157844.06	98.8	70 - 120	
45	Sc	2	5753218.50	1.80	5827273.50	98.7	70 - 120	
72	Ge	1	85788.02	0.98	86621.49	99.0	70 - 120	
115	In	2	6256392.50	0.82	6276207.00	99.7	70 - 120	
209	Bi	2	4395361.00	0.80	4446753.50	98.8	70 - 120	

Calibration Standard QC Report

Acq. Method: DHL_3Fe.M Sample Name: L-160810
Operator: KL Instrument: ICPMS3
Date Acquired: Aug 10 2016 11:35 am
Last Cal. Update: Aug 10 2016 11:33 am

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)	Flag
6	Li	2	---	-3446.19	P	24.24	0.70	ISFail
7	Li	2	45	74023.09	P	803.60	1.09	Fail
9	Be	2	45	23731.76	P	450.30	1.90	Fail
11	B	2	45	22654.39	P	294.00	1.30	Fail
23	Na	1	45	62444.13	P	432.30	0.69	Fail
24	Mg	1	45	21934.39	P	787.50	3.59	Fail
27	Al	1	45	5561.32	P	208.90	3.76	Fail
39	K	1	45	16884.32	P	603.60	3.57	Fail
44	Ca	2	45	63351.58	P	1583.00	2.50	Fail
45	Sc	1	---	154506.50	P	1761.00	1.14	
45	Sc	2	---	5765751.00	A	98200.00	1.70	
47	Ti	1	45	234.23	P	28.79	12.29	Fail
51	V	1	45	9247.59	P	182.40	1.97	Fail
51	V	2	---		P			
52	Cr	1	45	12348.09	P	215.10	1.74	Fail
55	Mn	1	45	5062.45	P	94.05	1.86	Fail
56	Fe	1	72	185385.50	P	3934.00	2.12	Fail
59	Co	1	72	20770.16	P	359.00	1.73	
60	Ni	1	72	6012.67	P	207.60	3.45	Fail
60	Ni	2	---		P			
63	Cu	1	72	16708.88	P	634.70	3.80	Fail
63	Cu	2	---		P			
66	Zn	1	72	1811.72	P	55.16	3.04	Fail
66	Zn	2	---		P			
72	Ge	1	---	84879.22	P	755.20	0.89	
72	Ge	2	---		A			
75	As	1	72	1068.16	P	36.54	3.42	Fail
78	Se	1	72	65.82	P	1.45	2.20	Fail
88	Sr	2	115	104718.70	P	1624.00	1.55	Fail
95	Mo	2	115	18214.37	P	515.00	2.83	Fail
107	Ag	2	115	47348.87	P	548.90	1.16	Fail
111	Cd	2	115	10296.76	P	70.30	0.68	Fail
115	In	2	---	6293745.00	A	92900.00	1.48	
118	Sn	2	115	27584.96	P	664.80	2.41	Fail
121	Sb	2	115	32392.72	P	789.00	2.44	Fail
137	Ba	2	115	12473.77	P	154.70	1.24	Fail
205	Tl	2	209	69134.29	P	1115.00	1.61	Fail
208	Pb	2	209	96323.04	P	425.00	0.44	Fail
209	Bi	2	---	4398510.00	A	66790.00	1.52	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-3446.19	0.70	36.77	-9372.4	70 - 120	ISFail
45	Sc	1	154506.55	1.14	157844.06	97.9	70 - 120	
45	Sc	2	5765751.50	1.70	5827273.50	98.9	70 - 120	
72	Ge	1	84879.22	0.89	86621.49	98.0	70 - 120	
115	In	2	6293745.50	1.48	6276207.00	100.3	70 - 120	
209	Bi	2	4398510.00	1.52	4446753.50	98.9	70 - 120	

Calibration Standard QC Report

Acq. Method: DHL_3Fe.M Sample Name: 10X-160810
Operator: KL Instrument: ICPMS3
Date Acquired: Aug 10 2016 11:41 am
Last Cal. Update: Aug 10 2016 11:39 am

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)	Flag
6	Li	2	---	-16925.15	P	124.60	0.74	ISFail
7	Li	2	45	363170.19	P	5760.00	1.59	Fail
9	Be	2	45	117723.50	P	715.80	0.61	Fail
11	B	2	45	97217.87	P	1719.00	1.77	Fail
23	Na	1	45	257709.59	P	4337.00	1.68	Fail
24	Mg	1	45	105580.90	P	1684.00	1.60	Fail
27	Al	1	45	26057.05	P	655.20	2.51	Fail
39	K	1	45	64147.34	P	1129.00	1.76	Fail
44	Ca	2	45	264485.91	P	4460.00	1.69	Fail
45	Sc	1	---	154967.59	P	449.70	0.29	
45	Sc	2	---	5754845.00	A	82050.00	1.43	
47	Ti	1	45	1117.40	P	25.75	2.30	Fail
51	V	1	45	45041.05	P	864.60	1.92	Fail
51	V	2	---		P			
52	Cr	1	45	59896.97	P	1879.00	3.14	Fail
55	Mn	1	45	24399.85	P	828.30	3.39	Fail
56	Fe	1	72	918985.88	A	47070.00	5.12	Fail
59	Co	1	72	103000.50	P	1801.00	1.75	
60	Ni	1	72	29999.42	P	917.90	3.06	
60	Ni	2	---		P			
63	Cu	1	72	82424.35	P	2167.00	2.63	Fail
63	Cu	2	---		P			
66	Zn	1	72	8729.45	P	386.50	4.43	Fail
66	Zn	2	---		P			
72	Ge	1	---	84495.81	P	565.10	0.67	
72	Ge	2	---		A			
75	As	1	72	5056.71	P	165.10	3.27	Fail
78	Se	1	72	309.67	P	5.15	1.66	Fail
88	Sr	2	115	517301.50	P	9021.00	1.74	Fail
95	Mo	2	115	91068.24	P	806.60	0.89	Fail
107	Ag	2	115	235191.09	P	2666.00	1.13	Fail
111	Cd	2	115	51361.26	P	669.30	1.30	Fail
115	In	2	---	6274154.00	A	77530.00	1.24	
118	Sn	2	115	137732.20	P	2102.00	1.53	Fail
121	Sb	2	115	161537.70	P	2133.00	1.32	Fail
137	Ba	2	115	61993.64	P	752.70	1.21	Fail
205	Tl	2	209	348700.09	P	5832.00	1.67	Fail
208	Pb	2	209	482299.50	P	6717.00	1.39	Fail
209	Bi	2	---	4385129.00	A	23640.00	0.54	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-16925.15	0.74	36.77	-46030.3	70 - 120	ISFail
45	Sc	1	154967.56	0.29	157844.06	98.2	70 - 120	
45	Sc	2	5754844.50	1.43	5827273.50	98.8	70 - 120	
72	Ge	1	84495.81	0.67	86621.49	97.5	70 - 120	
115	In	2	6274154.50	1.24	6276207.00	100.0	70 - 120	
209	Bi	2	4385129.50	0.54	4446753.50	98.6	70 - 120	

Calibration Standard QC Report

Acq. Method: DHL_3Fe.M Sample Name: 5X-160810
Operator: KL Instrument: ICPMS3
Date Acquired: Aug 10 2016 11:47 am
Last Cal. Update: Aug 10 2016 11:45 am

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)	Flag
6	Li	2	---	-33999.55	P	841.10	2.47	ISFail
7	Li	2	45	724475.31	A	12440.00	1.72	Fail
9	Be	2	45	233784.20	P	2832.00	1.21	Fail
11	B	2	45	189854.91	P	3998.00	2.11	Fail
23	Na	1	45	498223.19	P	7132.00	1.43	Fail
24	Mg	1	45	211925.09	P	7472.00	3.53	Fail
27	Al	1	45	51322.30	P	1710.00	3.33	Fail
39	K	1	45	122943.10	P	512.20	0.42	Fail
44	Ca	2	45	512646.09	P	13140.00	2.56	Fail
45	Sc	1	---	152689.30	P	624.80	0.41	
45	Sc	2	---	5611635.00	A	96700.00	1.72	
47	Ti	1	45	2242.46	P	83.24	3.71	Fail
51	V	1	45	89126.53	P	2011.00	2.26	Fail
51	V	2	---		A			
52	Cr	1	45	119844.20	P	3672.00	3.06	
55	Mn	1	45	48634.02	P	1452.00	2.99	
56	Fe	1	72	1817413.00	A	40580.00	2.23	Fail
59	Co	1	72	204377.70	P	4944.00	2.42	
60	Ni	1	72	59600.60	P	1530.00	2.57	
60	Ni	2	---		P			
63	Cu	1	72	162708.41	P	3612.00	2.22	
63	Cu	2	---		P			
66	Zn	1	72	17136.57	P	316.90	1.85	Fail
66	Zn	2	---		P			
72	Ge	1	---	82968.47	P	313.80	0.38	
72	Ge	2	---		A			
75	As	1	72	9928.12	P	226.30	2.28	Fail
78	Se	1	72	618.24	P	13.49	2.18	Fail
88	Sr	2	115	1064290.00	A	19210.00	1.81	Fail
95	Mo	2	115	177487.50	P	2170.00	1.22	Fail
107	Ag	2	115	462284.91	P	5678.00	1.23	Fail
111	Cd	2	115	100039.20	P	1639.00	1.64	Fail
115	In	2	---	6104971.00	A	98290.00	1.61	
118	Sn	2	115	270212.81	P	3858.00	1.43	Fail
121	Sb	2	115	319318.19	P	3214.00	1.01	Fail
137	Ba	2	115	122455.10	P	1212.00	0.99	Fail
205	Tl	2	209	696208.88	P	7814.00	1.12	Fail
208	Pb	2	209	951484.69	P	8998.00	0.95	Fail
209	Bi	2	---	4305669.00	A	50180.00	1.17	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-33999.56	2.47	36.77	-92466.5	70 - 120	ISFail
45	Sc	1	152689.34	0.41	157844.06	96.7	70 - 120	
45	Sc	2	5611634.50	1.72	5827273.50	96.3	70 - 120	
72	Ge	1	82968.48	0.38	86621.49	95.8	70 - 120	
115	In	2	6104970.50	1.61	6276207.00	97.3	70 - 120	
209	Bi	2	4305669.00	1.17	4446753.50	96.8	70 - 120	

Calibration Standard QC Report

Acq. Method: DHL_3Fe.M Sample Name: 2X-160810
Operator: KL Instrument: ICPMS3
Date Acquired: Aug 10 2016 11:53 am
Last Cal. Update: Aug 10 2016 11:51 am

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)	Flag
6	Li	2	---	-79656.35	P	1985.00	2.49	ISFail
7	Li	2	45	1732888.00	A	28500.00	1.64	Fail
9	Be	2	45	571237.31	P	5775.00	1.01	Fail
11	B	2	45	454411.09	P	3383.00	0.74	Fail
23	Na	1	45	1251735.00	A	25840.00	2.06	Fail
24	Mg	1	45	519337.31	P	15240.00	2.93	
27	Al	1	45	126975.90	P	4337.00	3.42	Fail
39	K	1	45	298749.31	P	3502.00	1.17	Fail
44	Ca	2	45	1286593.00	A	26640.00	2.07	Fail
45	Sc	1	---	152296.50	P	633.40	0.42	
45	Sc	2	---	5472111.00	A	64810.00	1.18	
47	Ti	1	45	5645.38	P	148.10	2.62	
51	V	1	45	219021.59	P	5335.00	2.44	
51	V	2	---		A			
52	Cr	1	45	291330.81	P	7197.00	2.47	
55	Mn	1	45	118984.90	P	3218.00	2.70	
56	Fe	1	72	4350439.00	A	117800.00	2.71	
59	Co	1	72	497496.00	P	11230.00	2.26	
60	Ni	1	72	143370.30	P	3172.00	2.21	
60	Ni	2	---		P			
63	Cu	1	72	391464.50	P	8876.00	2.27	
63	Cu	2	---		A			
66	Zn	1	72	41493.13	P	965.10	2.33	Fail
66	Zn	2	---		P			
72	Ge	1	---	82448.43	P	478.20	0.58	
72	Ge	2	---		M			
75	As	1	72	24106.80	P	561.70	2.33	Fail
78	Se	1	72	1469.13	P	34.34	2.34	Fail
88	Sr	2	115	2507826.00	A	54600.00	2.18	Fail
95	Mo	2	115	427054.59	P	6922.00	1.62	Fail
107	Ag	2	115	1124659.00	A	11420.00	1.02	Fail
111	Cd	2	115	235766.20	P	4371.00	1.85	Fail
115	In	2	---	5818367.00	A	88790.00	1.53	
118	Sn	2	115	643320.31	P	11090.00	1.72	Fail
121	Sb	2	115	762252.69	P	10600.00	1.39	Fail
137	Ba	2	115	293872.69	P	3651.00	1.24	Fail
205	Tl	2	209	1768332.00	A	20360.00	1.15	Fail
208	Pb	2	209	2347279.00	A	23760.00	1.01	Fail
209	Bi	2	---	4163915.00	A	17870.00	0.43	

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2		-79656.36	2.49	36.77	-216636.5	70 -	120	ISFail
45	Sc	1		152296.45	0.42	157844.06	96.5	70 -	120	
45	Sc	2		5472111.50	1.18	5827273.50	93.9	70 -	120	
72	Ge	1		82448.43	0.58	86621.49	95.2	70 -	120	
115	In	2		5818367.50	1.53	6276207.00	92.7	70 -	120	
209	Bi	2		4163915.30	0.43	4446753.50	93.6	70 -	120	

Calibration Standard QC Report

Acq. Method: DHL_3Fe.M Sample Name: H-160810
Operator: KL Instrument: ICPMS3
Date Acquired: Aug 10 2016 11:59 am
Last Cal. Update: Aug 10 2016 11:57 am

QC&ISTD Elements

Element				CPS Mean		SD	RSD(%)	Flag
6	Li	2	---	-152111.80	P	1777.00	1.17	ISFail
7	Li	2	45	3354208.00	A	31470.00	0.94	Fail
9	Be	2	45	1074800.00	A	793.70	0.07	Fail
11	B	2	45	915593.81	A	4288.00	0.47	Fail
23	Na	1	45	2430604.00	A	37730.00	1.55	Fail
24	Mg	1	45	1071620.00	A	37510.00	3.50	
27	Al	1	45	253384.09	P	9365.00	3.70	Fail
39	K	1	45	592514.88	P	8144.00	1.37	Fail
44	Ca	2	45	2496344.00	A	25730.00	1.03	Fail
45	Sc	1	---	150944.70	P	592.40	0.39	
45	Sc	2	---	5370158.00	A	86780.00	1.62	
47	Ti	1	45	10957.01	P	481.60	4.40	
51	V	1	45	428728.59	P	12660.00	2.95	
51	V	2	---		A			
52	Cr	1	45	569223.88	P	14110.00	2.48	
55	Mn	1	45	235983.30	P	5414.00	2.29	
56	Fe	1	72	8429479.00	A	278300.00	3.30	
59	Co	1	72	998344.81	A	33180.00	3.32	
60	Ni	1	72	275846.41	P	5561.00	2.02	
60	Ni	2	---		M			
63	Cu	1	72	754637.31	P	15590.00	2.07	
63	Cu	2	---		A			
66	Zn	1	72	79187.46	P	1635.00	2.06	
66	Zn	2	---		P			
72	Ge	1	---	80473.09	P	435.80	0.54	
72	Ge	2	---		P			
75	As	1	72	46579.15	P	854.20	1.83	
78	Se	1	72	2850.22	P	71.20	2.50	
88	Sr	2	115	4732621.00	A	41080.00	0.87	Fail
95	Mo	2	115	825129.31	P	9393.00	1.14	Fail
107	Ag	2	115	2127568.00	A	11210.00	0.53	
111	Cd	2	115	445565.00	P	1737.00	0.39	Fail
115	In	2	---	5559739.00	A	40490.00	0.73	
118	Sn	2	115	1290863.00	A	17080.00	1.32	Fail
121	Sb	2	115	1494746.00	A	15710.00	1.05	Fail
137	Ba	2	115	565167.50	P	3596.00	0.64	Fail
205	Tl	2	209	3394220.00	A	5824.00	0.17	
208	Pb	2	209	4660657.00	A	31480.00	0.68	Fail
209	Bi	2	---	4057351.00	A	39750.00	0.98	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-152111.83	1.17	36.77	-413689.1	70 - 120	ISFail
45	Sc	1	150944.67	0.39	157844.06	95.6	70 - 120	
45	Sc	2	5370158.50	1.62	5827273.50	92.2	70 - 120	
72	Ge	1	80473.09	0.54	86621.49	92.9	70 - 120	
115	In	2	5559739.00	0.73	6276207.00	88.6	70 - 120	
209	Bi	2	4057350.80	0.98	4446753.50	91.2	70 - 120	

Calibration Standard QC Report

Acq. Method: DHL_3Fe.M Sample Name: H2-160810
Operator: KL Instrument: ICPMS3
Date Acquired: Aug 10 2016 12:05 pm
Last Cal. Update: Aug 10 2016 12:03 pm

QC&ISTD Elements

Element			CPS Mean		SD	RSD(%)	Flag
6 Li	2	---	-616473.50	P	2650.00	0.43	ISFail
7 Li	2	45	13670800.00	A	69170.00	0.51	Fail
9 Be	2	45	4122176.00	A	34070.00	0.83	
11 B	2	45	3637751.00	A	14700.00	0.40	Fail
23 Na	1	45	5869594.00	A	126000.00	2.15	Fail
24 Mg	1	45	2599353.00	A	70230.00	2.70	
27 Al	1	45	2474.95	P	94.59	3.82	Fail
39 K	1	45	1511420.00	A	38730.00	2.56	Fail
44 Ca	2	45	6139222.00	A	153100.00	2.49	Fail
45 Sc	1	---	151426.09	P	1263.00	0.83	
45 Sc	2	---	5420262.00	A	87790.00	1.62	
47 Ti	1	45	45931.27	P	1693.00	3.69	
51 V	1	45	1765041.00	A	66230.00	3.75	
51 V	2	---		A			
52 Cr	1	45	2302081.00	A	112900.00	4.90	
55 Mn	1	45	955336.69	A	56550.00	5.92	
56 Fe	1	72	17049.73	P	1483.00	8.70	Fail
59 Co	1	72	3812633.00	A	134700.00	3.53	
60 Ni	1	72	1114991.00	A	44920.00	4.03	
60 Ni	2	---		A			
63 Cu	1	72	2972362.00	A	103700.00	3.49	
63 Cu	2	---		A			
66 Zn	1	72	306760.41	P	8765.00	2.86	
66 Zn	2	---		A			
72 Ge	1	---	79885.80	P	592.50	0.74	
72 Ge	2	---		P			
75 As	1	72	185073.30	P	5638.00	3.05	
78 Se	1	72	11305.28	P	327.60	2.90	
88 Sr	2	115	19730250.00	A	255900.00	1.30	Fail
95 Mo	2	115	3543295.00	A	22830.00	0.64	
107 Ag	2	115	1420.19	P	265.60	18.70	Fail
111 Cd	2	115	1883541.00	A	8693.00	0.46	
115 In	2	---	5733262.00	A	40360.00	0.70	
118 Sn	2	115	5202843.00	A	38800.00	0.75	Fail
121 Sb	2	115	2048.06	P	294.40	14.38	Fail
137 Ba	2	115	2425181.00	A	32160.00	1.33	Fail
205 Tl	2	209	13437230.00	A	161800.00	1.20	
208 Pb	2	209	18304710.00	A	221400.00	1.21	
209 Bi	2	---	4035457.00	A	49250.00	1.22	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	2		-616473.56	0.43	36.77	#########	70 - 120	ISFail
45 Sc	1		151426.05	0.83	157844.06	95.9	70 - 120	
45 Sc	2		5420262.50	1.62	5827273.50	93.0	70 - 120	
72 Ge	1		79885.81	0.74	86621.49	92.2	70 - 120	
115 In	2		5733261.50	0.70	6276207.00	91.3	70 - 120	
209 Bi	2		4035457.00	1.22	4446753.50	90.8	70 - 120	

ICSA QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\016ICSA.D\016ICSA.D#

Date Acquired:	Aug 10 2016 12:23 pm	Sample Name:	**ICSA-160810**
Acq. Method:	DHL_3Fe.M	Misc Info:	ICSAICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 10 2016 01:05 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	RL S	RL Aq	Flag
7	Li	2	45	0.324	ppb	3.91	8.00	5.00	
9	Be	2	45	0.129	ppb	7.00	0.32	0.80	
11	B	2	45	8.018	ppb	0.60	30.00	30.00	
23	Na	1	45	101900.000	ppb	1.35	#######	#######	
24	Mg	1	45	87700.000	ppb	2.35	#######	#######	
27	Al	1	45	96110.000	ppb	2.66	#######	#######	
39	K	1	45	92240.000	ppb	1.02	#######	#######	
44	Ca	2	45	91140.000	ppb	1.71	#######	#######	
47	Ti	1	45	1925.000	ppb	2.62	10.00	10.00	
51	V	1	45	0.065	ppb	7.99	10.00	10.00	
52	Cr	1	45	0.957	ppb	4.25	8.00	5.00	
55	Mn	1	45	0.967	ppb	0.82	8.00	10.00	
56	Fe	1	72	93720.000	ppb	2.26	#######	#######	
59	Co	1	72	1.344	ppb	1.74	8.00	10.00	
60	Ni	1	72	0.525	ppb	4.30	8.00	10.00	
63	Cu	1	72	2.165	ppb	3.38	8.00	10.00	
66	Zn	1	72	2.336	ppb	5.77	10.00	5.00	
75	As	1	72	0.656	ppb	1.71	4.00	5.00	
78	Se	1	72	0.553	ppb	4.76	2.00	5.00	
88	Sr	2	115	1.198	ppb	3.12	10.00	10.00	
95	Mo	2	115	1975.000	ppb	1.13	8.00	5.00	
107	Ag	2	115	0.101	ppb	9.49	0.80	2.00	
111	Cd	2	115	0.332	ppb	11.93	1.20	1.00	
118	Sn	2	115	0.561	ppb	4.43	10.00	10.00	
121	Sb	2	115	0.160	ppb	7.02	4.00	2.50	
137	Ba	2	115	0.544	ppb	14.03	8.00	10.00	
205	Tl	2	209	0.274	ppb	7.24	4.00	1.50	
208	Pb	2	209	0.404	ppb	6.78	1.20	1.00	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-62.59	17.96	36.77	-170.2	70 - 120	ISFail
45	Sc	1	144664.08	0.15	157844.06	91.6	70 - 120	
45	Sc	2	5565209.50	2.13	5827273.50	95.5	70 - 120	
72	Ge	1	77422.91	0.57	86621.49	89.4	70 - 120	
115	In	2	5928991.50	1.45	6276207.00	94.5	70 - 120	
209	Bi	2	3705677.50	1.14	4446753.50	83.3	70 - 120	

ICS-AB QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\017ICSB.D\017ICSB.D#

Date Acquired:	Aug 10 2016 12:29 pm	Sample Name:	**ICSAB-160810**
Acq. Method:	DHL_3Fe.M	Misc Info:	ICSBICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 10 2016 01:05 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)			Flag
7	Li	2	45	0.23	ppb	8.75	---	80 -		120	
9	Be	2	45	0.05	ppb	30.48	---	80 -		120	
11	B	2	45	6.15	ppb	2.34	---	80 -		120	
23	Na	1	45	98370.00	ppb	1.62	100000.00	80 -		120	
24	Mg	1	45	90520.00	ppb	3.05	100000.00	80 -		120	
27	Al	1	45	95830.00	ppb	4.01	100000.00	80 -		120	
39	K	1	45	92790.00	ppb	2.12	100000.00	80 -		120	
44	Ca	2	45	93720.00	ppb	1.74	100000.00	80 -		120	
47	Ti	1	45	1970.00	ppb	3.17	---	80 -		120	
51	V	1	45	40.24	ppb	3.66	40.00	80 -		120	
52	Cr	1	45	21.23	ppb	3.64	20.00	80 -		120	
55	Mn	1	45	19.32	ppb	3.51	20.00	80 -		120	
56	Fe	1	72	94770.00	ppb	4.59	100000.00	80 -		120	
59	Co	1	72	40.68	ppb	3.40	40.00	80 -		120	
60	Ni	1	72	36.94	ppb	2.87	40.00	80 -		120	
63	Cu	1	72	20.18	ppb	2.83	20.00	80 -		120	
66	Zn	1	72	18.79	ppb	3.52	20.00	80 -		120	
75	As	1	72	20.15	ppb	2.11	20.00	80 -		120	
78	Se	1	72	19.24	ppb	9.13	20.00	80 -		120	
88	Sr	2	115	1.16	ppb	6.26	---	80 -		120	
95	Mo	2	115	2077.00	ppb	1.33	---	80 -		120	
107	Ag	2	115	18.45	ppb	1.32	20.00	80 -		120	
111	Cd	2	115	9.29	ppb	5.45	10.00	80 -		120	
118	Sn	2	115	0.54	ppb	14.11	---	80 -		120	
121	Sb	2	115	0.06	ppb	9.60	---	80 -		120	
137	Ba	2	115	0.51	ppb	5.35	---	80 -		120	
205	Tl	2	209	0.15	ppb	5.39	---	80 -		120	
208	Pb	2	209	0.37	ppb	9.16	---	80 -		120	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	-29.01	17.82	36.77	-78.9	70 -		120	ISFail
45	Sc	1	141553.92	0.22	157844.06	89.7	70 -		120	
45	Sc	2	5969840.50	1.76	5827273.50	102.4	70 -		120	
72	Ge	1	77063.06	0.73	86621.49	89.0	70 -		120	
115	In	2	6082927.00	0.62	6276207.00	96.9	70 -		120	
209	Bi	2	3667072.80	1.03	4446753.50	82.5	70 -		120	

CCV QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\020ICV.D\020ICV.D#

Date Acquired:	Aug 10 2016 12:47 pm	Sample Name:	**ICV1-160810**
Acq. Method:	DHL_3Fe.M	Misc Info:	ICV ICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 10 2016 01:05 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	133.60	ppb	1.77	100.00	90 -	110	133.6	Fail
9	Be	2	45	117.10	ppb	1.44	100.00	90 -	110	117.1	Fail
11	B	2	45	109.80	ppb	2.42	100.00	90 -	110	109.8	
23	Na	1	45	2852.00	ppb	3.97	2500.00	90 -	110	114.1	Fail
24	Mg	1	45	2602.00	ppb	4.03	2500.00	90 -	110	104.1	
27	Al	1	45	2335.00	ppb	3.14	2500.00	90 -	110	93.4	
39	K	1	45	2467.00	ppb	1.52	2500.00	90 -	110	98.7	
44	Ca	2	45	2546.00	ppb	3.83	2500.00	90 -	110	101.8	
47	Ti	1	45	99.15	ppb	3.69	100.00	90 -	110	99.2	
51	V	1	45	105.00	ppb	3.63	100.00	90 -	110	105.0	
52	Cr	1	45	109.70	ppb	3.70	100.00	90 -	110	109.7	
55	Mn	1	45	98.48	ppb	3.49	100.00	90 -	110	98.5	
56	Fe	1	72	2611.00	ppb	3.90	2500.00	90 -	110	104.4	
59	Co	1	72	106.50	ppb	2.97	100.00	90 -	110	106.5	
60	Ni	1	72	104.10	ppb	1.95	100.00	90 -	110	104.1	
63	Cu	1	72	106.20	ppb	2.29	100.00	90 -	110	106.2	
66	Zn	1	72	103.90	ppb	3.06	100.00	90 -	110	103.9	
75	As	1	72	101.00	ppb	1.70	100.00	90 -	110	101.0	
78	Se	1	72	93.51	ppb	2.87	100.00	90 -	110	93.5	
88	Sr	2	115	112.40	ppb	2.00	100.00	90 -	110	112.4	Fail
95	Mo	2	115	102.90	ppb	1.87	100.00	90 -	110	102.9	
107	Ag	2	115	101.20	ppb	1.60	100.00	90 -	110	101.2	
111	Cd	2	115	98.92	ppb	2.13	100.00	90 -	110	98.9	
118	Sn	2	115	96.57	ppb	1.44	100.00	90 -	110	96.6	
121	Sb	2	115	96.82	ppb	1.91	100.00	90 -	110	96.8	
137	Ba	2	115	94.41	ppb	1.87	100.00	90 -	110	94.4	
205	Tl	2	209	97.04	ppb	1.27	100.00	90 -	110	97.0	
208	Pb	2	209	97.52	ppb	1.65	100.00	90 -	110	97.5	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	-28291.06	4.87	36.77	-76941.5	70 -	120		ISFail
45	Sc	1	154570.78	0.40	157844.06	97.9	70 -	120		
45	Sc	2	6889101.50	2.78	5827273.50	118.2	70 -	120		
72	Ge	1	86927.37	0.80	86621.49	100.4	70 -	120		
115	In	2	6576274.50	1.50	6276207.00	104.8	70 -	120		
209	Bi	2	4138242.50	1.88	4446753.50	93.1	70 -	120		

CCV QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\022ICV.D\022ICV.D#

Date Acquired:	Aug 10 2016 12:59 pm	Sample Name:	**ICV1-160810**
Acq. Method:	DHL_3Fe.M	Misc Info:	ICV ICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 10 2016 01:05 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	134.50	ppb	1.34	100.00	90 -	110	134.5	Fail
9	Be	2	45	118.30	ppb	2.41	100.00	90 -	110	118.3	Fail
11	B	2	45	111.00	ppb	2.05	100.00	90 -	110	111.0	Fail
23	Na	1	45	2936.00	ppb	2.32	2500.00	90 -	110	117.4	Fail
24	Mg	1	45	2637.00	ppb	3.26	2500.00	90 -	110	105.5	
27	Al	1	45	2382.00	ppb	3.48	2500.00	90 -	110	95.3	
39	K	1	45	2493.00	ppb	2.20	2500.00	90 -	110	99.7	
44	Ca	2	45	2506.00	ppb	4.78	2500.00	90 -	110	100.2	
47	Ti	1	45	98.40	ppb	5.68	100.00	90 -	110	98.4	
51	V	1	45	105.20	ppb	3.66	100.00	90 -	110	105.2	
52	Cr	1	45	110.50	ppb	3.70	100.00	90 -	110	110.5	Fail
55	Mn	1	45	99.71	ppb	2.41	100.00	90 -	110	99.7	
56	Fe	1	72	2619.00	ppb	3.33	2500.00	90 -	110	104.8	
59	Co	1	72	107.90	ppb	2.61	100.00	90 -	110	107.9	
60	Ni	1	72	106.00	ppb	3.24	100.00	90 -	110	106.0	
63	Cu	1	72	107.40	ppb	2.83	100.00	90 -	110	107.4	
66	Zn	1	72	105.20	ppb	2.29	100.00	90 -	110	105.2	
75	As	1	72	102.40	ppb	2.09	100.00	90 -	110	102.4	
78	Se	1	72	95.97	ppb	4.28	100.00	90 -	110	96.0	
88	Sr	2	115	114.90	ppb	1.13	100.00	90 -	110	114.9	Fail
95	Mo	2	115	104.50	ppb	1.90	100.00	90 -	110	104.5	
107	Ag	2	115	101.80	ppb	1.48	100.00	90 -	110	101.8	
111	Cd	2	115	100.60	ppb	1.64	100.00	90 -	110	100.6	
118	Sn	2	115	97.71	ppb	2.23	100.00	90 -	110	97.7	
121	Sb	2	115	97.73	ppb	1.54	100.00	90 -	110	97.7	
137	Ba	2	115	96.22	ppb	1.82	100.00	90 -	110	96.2	
205	Tl	2	209	97.08	ppb	1.01	100.00	90 -	110	97.1	
208	Pb	2	209	97.68	ppb	1.35	100.00	90 -	110	97.7	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	-27573.77	2.48	36.77	-74990.7	70 -	120		ISFail
45	Sc	1	154283.36	0.69	157844.06	97.7	70 -	120		
45	Sc	2	6908818.00	2.71	5827273.50	118.6	70 -	120		
72	Ge	1	85934.37	1.11	86621.49	99.2	70 -	120		
115	In	2	6362271.00	1.52	6276207.00	101.4	70 -	120		
209	Bi	2	4051822.50	0.55	4446753.50	91.1	70 -	120		

CCV QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\023LCVL.D\023LCVL.D#

Date Acquired:	Aug 10 2016 01:05 pm	Sample Name:	**ILCVL-160810**
Acq. Method:	DHL_3Fe.M	Misc Info:	LCVLICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 10 2016 01:05 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	14.61	ppb	2.75	10.00	70 -	130	146.1	Fail
9	Be	2	45	1.28	ppb	2.90	1.00	70 -	130	127.9	
11	B	2	45	25.21	ppb	2.50	20.00	70 -	130	126.1	
23	Na	1	45	129.00	ppb	0.61	100.00	70 -	130	129.0	
24	Mg	1	45	107.70	ppb	3.02	100.00	70 -	130	107.7	
27	Al	1	45	100.70	ppb	2.97	100.00	70 -	130	100.7	
39	K	1	45	109.90	ppb	1.36	100.00	70 -	130	109.9	
44	Ca	2	45	96.93	ppb	2.01	100.00	70 -	130	96.9	
47	Ti	1	45	5.02	ppb	5.82	5.00	70 -	130	100.3	
51	V	1	45	1.12	ppb	3.78	1.00	70 -	130	111.8	
52	Cr	1	45	5.69	ppb	2.72	5.00	70 -	130	113.7	
55	Mn	1	45	5.13	ppb	2.54	5.00	70 -	130	102.6	
56	Fe	1	72	111.90	ppb	2.66	100.00	70 -	130	111.9	
59	Co	1	72	5.53	ppb	1.89	5.00	70 -	130	110.6	
60	Ni	1	72	5.53	ppb	5.77	5.00	70 -	130	110.5	
63	Cu	1	72	5.67	ppb	2.24	5.00	70 -	130	113.4	
66	Zn	1	72	5.15	ppb	3.33	5.00	70 -	130	103.0	
75	As	1	72	5.58	ppb	2.76	5.00	70 -	130	111.6	
78	Se	1	72	5.22	ppb	0.92	5.00	70 -	130	104.5	
88	Sr	2	115	5.73	ppb	1.29	5.00	70 -	130	114.7	
95	Mo	2	115	5.60	ppb	3.27	5.00	70 -	130	112.0	
107	Ag	2	115	2.18	ppb	3.09	2.00	70 -	130	108.9	
111	Cd	2	115	1.08	ppb	6.38	1.00	70 -	130	107.9	
118	Sn	2	115	5.10	ppb	1.76	5.00	70 -	130	102.0	
121	Sb	2	115	2.07	ppb	1.55	2.00	70 -	130	103.5	
137	Ba	2	115	4.79	ppb	2.65	5.00	70 -	130	95.8	
205	Tl	2	209	1.19	ppb	2.87	1.00	70 -	130	119.2	
208	Pb	2	209	1.10	ppb	1.09	1.00	70 -	130	109.7	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2 RHigh	-2938.40	6.35	36.77	-7991.4	70 -	120	ISFail
45	Sc	1	156003.47	1.14	157844.06	98.8	70 -	120	
45	Sc	2	6769750.50	2.03	5827273.50	116.2	70 -	120	
72	Ge	1	87067.64	1.39	86621.49	100.5	70 -	120	
115	In	2	6360994.00	1.47	6276207.00	101.4	70 -	120	
209	Bi	2	4069238.30	1.80	4446753.50	91.5	70 -	120	

ICB QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\024_ICB.D\024_ICB.D#

Date Acquired:	Aug 10 2016 01:11 pm	Sample Name:	**ICB1-160810**
Acq. Method:	DHL_3Fe.M	Misc Info:	ICB ICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 10 2016 01:05 pm	Instrument:	ICPMS3

QC Elements

Element				Conc.		RSD(%)	High Limit	Flag
7	Li	2	45	0.22	ppb	7.04	2.00	
9	Be	2	45	0.07	ppb	24.15	0.40	
11	B	2	45	2.98	ppb	1.41	10.00	
23	Na	1	45	13.00	ppb	1.57	50.00	
24	Mg	1	45	0.69	ppb	11.11	50.00	
27	Al	1	45	2.96	ppb	1.79	50.00	
39	K	1	45	3.15	ppb	0.94	50.00	
44	Ca	2	45	10.76	ppb	4.80	50.00	
47	Ti	1	45	0.08	ppb	41.67	4.00	
51	V	1	45	-0.02	ppb	10.93	4.00	
52	Cr	1	45	0.10	ppb	9.78	2.00	
55	Mn	1	45	0.08	ppb	18.10	2.00	
56	Fe	1	72	1.31	ppb	8.28	50.00	
59	Co	1	72	0.06	ppb	13.76	2.00	
60	Ni	1	72	0.07	ppb	3.94	2.00	
63	Cu	1	72	0.11	ppb	5.06	2.00	
66	Zn	1	72	-0.21	ppb	8.43	4.00	
75	As	1	72	0.20	ppb	4.65	2.00	
78	Se	1	72	0.30	ppb	17.09	0.60	
88	Sr	2	115	0.16	ppb	5.97	4.00	
95	Mo	2	115	0.14	ppb	12.66	2.00	
107	Ag	2	115	0.04	ppb	19.84	0.40	
111	Cd	2	115	0.04	ppb	25.93	0.40	
118	Sn	2	115	0.13	ppb	7.54	20.00	
121	Sb	2	115	0.06	ppb	1.40	2.00	
137	Ba	2	115	0.07	ppb	5.16	2.00	
205	Tl	2	209	0.14	ppb	2.98	2.00	
208	Pb	2	209	0.09	ppb	7.41	0.40	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2 RHig	-61.21	26.40	36.77	-166.5	70 - 120	ISFail
45	Sc	1	155618.23	0.74	157844.06	98.6	70 - 120	
45	Sc	2	6799310.00	2.24	5827273.50	116.7	70 - 120	
72	Ge	1	87826.74	0.71	86621.49	101.4	70 - 120	
115	In	2	6371903.50	1.57	6276207.00	101.5	70 - 120	
209	Bi	2	4064265.30	0.93	4446753.50	91.4	70 - 120	

DT QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\043DT1.D\043DT1.D#

Date Acquired:	Aug 10 2016 03:15 pm	Sample Name:	**1607294-09A SD**
Acq. Method:	DHL_3Fe.M	Misc Info:	SD ICPMS_TSDOD1
Operator:	KL	Bench Diln:	25.00
Last Cal. Update:	Aug 10 2016 01:05 pm	Auto Diln:	Undiluted
Instrument:	ICPMS3	Total Diln:	25.00

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	17.67	ppb	0.67	-3442.13	90 - 110		-2.6	
9	Be	2	45	0.63	ppb	5.02	3.02	90 - 110		104.6	GOOD
11	B	2	45	25.07	ppb	2.68	106.90	90 - 110		117.3	
23	Na	1	45	1108.00	ppb	2.04	5744.00	90 - 110		96.4	GOOD
24	Mg	1	45	3199.00	ppb	3.59	16290.00	90 - 110		98.2	GOOD
27	Al	1	45	13430.00	ppb	4.35	68890.00	90 - 110		97.5	GOOD
39	K	1	45	3067.00	ppb	2.18	15750.00	90 - 110		97.4	GOOD
44	Ca	2	45	31350.00	ppb	2.51	154000.00	90 - 110		101.8	GOOD
47	Ti	1	45	60.39	ppb	0.22	306.90	90 - 110		98.4	GOOD
51	V	1	45	21.52	ppb	3.32	107.30	90 - 110		100.3	GOOD
52	Cr	1	45	12.23	ppb	4.06	60.46	90 - 110		101.1	GOOD
55	Mn	1	45	155.30	ppb	3.77	754.20	90 - 110		103.0	GOOD
56	Fe	1	72	14020.00	ppb	3.33	69200.00	90 - 110		101.3	GOOD
59	Co	1	72	5.96	ppb	2.52	29.54	90 - 110		100.8	GOOD
60	Ni	1	72	9.41	ppb	2.69	45.75	90 - 110		102.9	GOOD
63	Cu	1	72	5.16	ppb	4.06	24.51	90 - 110		105.3	GOOD
66	Zn	1	72	47.56	ppb	2.56	211.80	90 - 110		112.3	
75	As	1	72	4.85	ppb	5.23	23.15	90 - 110		104.7	GOOD
78	Se	1	72	3.14	ppb	4.02	14.40	90 - 110		109.1	GOOD
88	Sr	2	115	96.76	ppb	1.78	478.00	90 - 110		101.2	GOOD
95	Mo	2	115	0.38	ppb	4.93	1.68	90 - 110		112.2	
107	Ag	2	115	0.06	ppb	11.28	0.26	90 - 110		122.3	
111	Cd	2	115	0.23	ppb	22.85	1.10	90 - 110		107.0	GOOD
118	Sn	2	115	2.05	ppb	2.56	10.12	90 - 110		101.1	GOOD
121	Sb	2	115	0.26	ppb	5.34	1.06	90 - 110		120.7	
137	Ba	2	115	109.00	ppb	1.17	554.80	90 - 110		98.2	GOOD
205	Tl	2	209	0.19	ppb	3.15	0.75	90 - 110		127.9	
208	Pb	2	209	14.31	ppb	1.47	73.78	90 - 110		97.0	GOOD

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	-3442.13	2.67	36.77	-9361.4	70 -	120	ISFail
45	Sc	1	167941.36	1.05	157844.06	106.4	70 -	120	
45	Sc	2	6425786.00	2.77	5827273.50	110.3	70 -	120	
72	Ge	1	90857.88	0.63	86621.49	104.9	70 -	120	
115	In	2	6501785.50	1.17	6276207.00	103.6	70 -	120	
209	Bi	2	4224544.50	0.83	4446753.50	95.0	70 -	120	

PDS QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\044_PDS.D\044_PDS.D#

Date Acquired:	Aug 10 2016 03:21 pm	Sample Name:	**1607294-09A PDS**
Acq. Method:	DHL_3Fe.M	Misc Info:	PDS ICPMS_TSDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	Aug 10 2016 01:05 pm	Auto Diln:	Undiluted
Instrument:	ICPMS3	Total Diln:	5.00

QC Elements

Element				Conc.		RSD(%)	Ref Conc	Spike	Range	Rec(%)	Flag
7	Li	2	45	311.80	ppb	1.92	-60184.45	200	75-125	######	Fail
9	Be	2	45	206.40	ppb	0.78	3.02	200	75-125	101.7	
11	B	2	45	301.70	ppb	2.04	106.90	200	75-125	97.4	
23	Na	1	45	10690.00	ppb	2.12	5744.00	5000	75-125	98.9	
24	Mg	1	45	21310.00	ppb	1.66	16290.00	5000	75-125	100.4	
27	Al	1	45	74800.00	ppb	3.52	68890.00	5000	75-125	118.2	
39	K	1	45	21050.00	ppb	1.55	15750.00	5000	75-125	106.0	
44	Ca	2	45	160900.00	ppb	2.03	154000.00	5000	75-125	138.0	Fail
47	Ti	1	45	517.00	ppb	3.24	306.90	200	75-125	105.1	
51	V	1	45	304.10	ppb	2.59	107.30	200	75-125	98.4	
52	Cr	1	45	256.80	ppb	2.89	60.46	200	75-125	98.2	
55	Mn	1	45	957.20	ppb	2.89	754.20	200	75-125	101.5	
56	Fe	1	72	76080.00	ppb	3.07	69200.00	5000	75-125	137.6	Fail
59	Co	1	72	224.30	ppb	2.19	29.54	200	75-125	97.4	
60	Ni	1	72	232.30	ppb	1.94	45.75	200	75-125	93.3	
63	Cu	1	72	208.20	ppb	1.95	24.51	200	75-125	91.8	
66	Zn	1	72	392.40	ppb	2.48	211.80	200	75-125	90.3	
75	As	1	72	210.90	ppb	1.84	23.15	200	75-125	93.9	
78	Se	1	72	189.90	ppb	1.84	14.40	200	75-125	87.8	
88	Sr	2	115	687.50	ppb	1.81	478.00	200	75-125	104.8	
95	Mo	2	115	198.50	ppb	2.02	1.68	200	75-125	98.4	
107	Ag	2	115	182.20	ppb	1.62	0.26	200	75-125	91.0	
111	Cd	2	115	180.60	ppb	1.43	1.10	200	75-125	89.8	
118	Sn	2	115	203.00	ppb	1.16	10.12	200	75-125	96.4	
121	Sb	2	115	186.30	ppb	1.41	1.06	200	75-125	92.6	
137	Ba	2	115	786.40	ppb	1.88	554.80	200	75-125	115.8	
205	Tl	2	209	207.30	ppb	2.69	0.75	200	75-125	103.3	
208	Pb	2	209	274.40	ppb	1.40	73.78	200	75-125	100.3	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	-60184.45	3.06	36.77	-163679.9	70 - 120	ISFail
45	Sc	1	161731.20	0.42	157844.06	102.5	70 - 120	
45	Sc	2	6242884.50	1.83	5827273.50	107.1	70 - 120	
72	Ge	1	85202.16	0.59	86621.49	98.4	70 - 120	
115	In	2	6248320.00	1.23	6276207.00	99.6	70 - 120	
209	Bi	2	3872849.50	1.06	4446753.50	87.1	70 - 120	

MS/MSD QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\045_MS.D\045_MS.D#

Date Acquired:	Aug 10 2016 03:27 pm	Sample Name:	**1607294-09A MS**
Acq. Method:	DHL_3Fe.M	Misc Info:	MS ICPMS_TSDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	Aug 10 2016 01:05 pm	Auto Diln:	Undiluted
Instrument:	ICPMS3	Total Diln:	5.00

QC Elements

Element				Conc.		RSD(%)	Ref Conc	Spike	Range	Rec(%)	Flag
7	Li	2	45	320.30	ppb	1.68	########	200	80-120	######	Fail
9	Be	2	45	209.00	ppb	1.44	3.02	200	80-120	103.0	
11	B	2	45	309.50	ppb	2.09	106.90	200	80-120	101.3	
23	Na	1	45	10620.00	ppb	2.74	5744.00	5000	80-120	97.5	
24	Mg	1	45	21610.00	ppb	2.64	16290.00	5000	80-120	106.4	
27	Al	1	45	75510.00	ppb	3.29	68890.00	1000	80-120	662.0	Fail
39	K	1	45	21650.00	ppb	1.40	15750.00	5000	80-120	118.0	
44	Ca	2	45	165200.00	ppb	2.55	########	5000	80-120	224.0	Fail
47	Ti	1	45	638.50	ppb	3.67	306.90	200	80-120	165.8	Fail
51	V	1	45	314.40	ppb	2.24	107.30	200	80-120	103.6	
52	Cr	1	45	258.20	ppb	2.85	60.46	200	80-120	98.9	
55	Mn	1	45	1070.00	ppb	2.89	754.20	200	80-120	157.9	Fail
56	Fe	1	72	70900.00	ppb	2.58	69200.00	1000	80-120	170.0	Fail
59	Co	1	72	233.20	ppb	2.39	29.54	200	80-120	101.8	
60	Ni	1	72	241.40	ppb	1.90	45.75	200	80-120	97.8	
63	Cu	1	72	216.40	ppb	2.40	24.51	200	80-120	95.9	
66	Zn	1	72	409.10	ppb	2.15	211.80	200	80-120	98.7	
75	As	1	72	214.30	ppb	1.99	23.15	200	80-120	95.6	
78	Se	1	72	194.20	ppb	2.70	14.40	200	80-120	89.9	
88	Sr	2	115	730.10	ppb	1.81	478.00	200	80-120	126.1	Fail
95	Mo	2	115	192.00	ppb	2.07	1.68	200	80-120	95.2	
107	Ag	2	115	184.30	ppb	1.96	0.26	200	80-120	92.0	
111	Cd	2	115	187.50	ppb	2.04	1.10	200	80-120	93.2	
118	Sn	2	115	201.60	ppb	1.80	10.12	200	80-120	95.7	
121	Sb	2	115	46.66	ppb	1.66	1.06	200	80-120	22.8	Fail
137	Ba	2	115	822.10	ppb	1.09	554.80	200	80-120	133.7	Fail
205	Tl	2	209	216.70	ppb	1.33	0.75	200	80-120	108.0	
208	Pb	2	209	297.70	ppb	1.32	73.78	200	80-120	112.0	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	-95289.85	2.05	36.77	########	70	-	120	ISFail
45	Sc	1	161990.89	0.39	157844.06	102.6	70	-	120	
45	Sc	2	6354399.50	1.98	5827273.50	109.0	70	-	120	
72	Ge	1	85002.87	0.15	86621.49	98.1	70	-	120	
115	In	2	6244975.00	0.98	6276207.00	99.5	70	-	120	
209	Bi	2	3860573.30	1.91	4446753.50	86.8	70	-	120	

MS/MSD QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\046_MS.D\046_MS.D#

Date Acquired:	Aug 10 2016 03:32 pm	Sample Name:	**1607294-09A MSD**
Acq. Method:	DHL_3Fe.M	Misc Info:	MSD ICPMS_TSDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	Aug 10 2016 01:05 pm	Auto Diln:	Undiluted
Instrument:	ICPMS3	Total Diln:	5.00

QC Elements

Element				Conc.		RSD(%)	Ref Conc	Spike	Range	Rec(%)	Flag
7	Li	2	45	312.20	ppb	1.49	########	200	80-120	######	Fail
9	Be	2	45	203.50	ppb	1.46	3.02	200	80-120	100.2	
11	B	2	45	298.50	ppb	2.84	106.90	200	80-120	95.8	
23	Na	1	45	10280.00	ppb	1.62	5744.00	5000	80-120	90.7	
24	Mg	1	45	21290.00	ppb	2.36	16290.00	5000	80-120	100.0	
27	Al	1	45	74270.00	ppb	3.50	68890.00	1000	80-120	538.0	Fail
39	K	1	45	21080.00	ppb	1.97	15750.00	5000	80-120	106.6	
44	Ca	2	45	165000.00	ppb	2.64	########	5000	80-120	220.0	Fail
47	Ti	1	45	612.00	ppb	2.89	306.90	200	80-120	152.6	Fail
51	V	1	45	305.30	ppb	2.64	107.30	200	80-120	99.0	
52	Cr	1	45	254.00	ppb	2.37	60.46	200	80-120	96.8	
55	Mn	1	45	972.80	ppb	1.68	754.20	200	80-120	109.3	
56	Fe	1	72	67340.00	ppb	2.60	69200.00	1000	80-120	-186.0	Fail
59	Co	1	72	222.70	ppb	2.38	29.54	200	80-120	96.6	
60	Ni	1	72	231.60	ppb	1.69	45.75	200	80-120	92.9	
63	Cu	1	72	212.70	ppb	1.58	24.51	200	80-120	94.1	
66	Zn	1	72	393.80	ppb	2.18	211.80	200	80-120	91.0	
75	As	1	72	209.20	ppb	1.73	23.15	200	80-120	93.0	
78	Se	1	72	189.00	ppb	0.80	14.40	200	80-120	87.3	
88	Sr	2	115	709.60	ppb	1.17	478.00	200	80-120	115.8	
95	Mo	2	115	187.20	ppb	1.49	1.68	200	80-120	92.8	
107	Ag	2	115	180.10	ppb	1.76	0.26	200	80-120	89.9	
111	Cd	2	115	183.60	ppb	1.33	1.10	200	80-120	91.3	
118	Sn	2	115	196.20	ppb	1.67	10.12	200	80-120	93.0	
121	Sb	2	115	46.51	ppb	0.98	1.06	200	80-120	22.7	Fail
137	Ba	2	115	841.70	ppb	1.93	554.80	200	80-120	143.5	Fail
205	Tl	2	209	209.20	ppb	1.44	0.75	200	80-120	104.2	
208	Pb	2	209	449.40	ppb	1.59	73.78	200	80-120	187.8	Fail

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	-92929.43	1.73	36.77	########	70	-	120	ISFail
45	Sc	1	162675.55	0.34	157844.06	103.1	70	-	120	
45	Sc	2	6371595.50	2.53	5827273.50	109.3	70	-	120	
72	Ge	1	85552.65	0.42	86621.49	98.8	70	-	120	
115	In	2	6269330.50	1.45	6276207.00	99.9	70	-	120	
209	Bi	2	3864451.30	0.22	4446753.50	86.9	70	-	120	

CCV QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\047CCV1.D\047CCV1.D#

Date Acquired:	Aug 10 2016 03:38 pm	Sample Name:	**CCV1-160810**
Acq. Method:	DHL_3Fe.M	Misc Info:	CCV ICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 10 2016 01:05 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	241.10	ppb	1.13	200.00	90 -	110	120.6	Fail
9	Be	2	45	223.20	ppb	1.61	200.00	90 -	110	111.6	Fail
11	B	2	45	215.00	ppb	1.77	200.00	90 -	110	107.5	
23	Na	1	45	5548.00	ppb	2.20	5000.00	90 -	110	111.0	Fail
24	Mg	1	45	5207.00	ppb	3.25	5000.00	90 -	110	104.1	
27	Al	1	45	5100.00	ppb	2.79	5000.00	90 -	110	102.0	
39	K	1	45	5194.00	ppb	1.43	5000.00	90 -	110	103.9	
44	Ca	2	45	5420.00	ppb	1.25	5000.00	90 -	110	108.4	
47	Ti	1	45	196.70	ppb	3.09	200.00	90 -	110	98.4	
51	V	1	45	201.50	ppb	3.17	200.00	90 -	110	100.8	
52	Cr	1	45	204.50	ppb	3.38	200.00	90 -	110	102.3	
55	Mn	1	45	203.50	ppb	2.69	200.00	90 -	110	101.8	
56	Fe	1	72	5141.00	ppb	2.74	5000.00	90 -	110	102.8	
59	Co	1	72	207.60	ppb	2.42	200.00	90 -	110	103.8	
60	Ni	1	72	202.90	ppb	2.01	200.00	90 -	110	101.5	
63	Cu	1	72	208.60	ppb	2.56	200.00	90 -	110	104.3	
66	Zn	1	72	206.60	ppb	2.37	200.00	90 -	110	103.3	
75	As	1	72	206.20	ppb	2.07	200.00	90 -	110	103.1	
78	Se	1	72	206.20	ppb	2.68	200.00	90 -	110	103.1	
88	Sr	2	115	217.70	ppb	2.16	200.00	90 -	110	108.9	
95	Mo	2	115	209.50	ppb	1.57	200.00	90 -	110	104.8	
107	Ag	2	115	209.40	ppb	2.11	200.00	90 -	110	104.7	
111	Cd	2	115	202.30	ppb	1.64	200.00	90 -	110	101.2	
118	Sn	2	115	198.00	ppb	1.44	200.00	90 -	110	99.0	
121	Sb	2	115	195.30	ppb	1.32	200.00	90 -	110	97.7	
137	Ba	2	115	195.20	ppb	1.42	200.00	90 -	110	97.6	
205	Tl	2	209	212.10	ppb	0.60	200.00	90 -	110	106.1	
208	Pb	2	209	203.70	ppb	2.11	200.00	90 -	110	101.9	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	-86652.00	1.66	36.77	-235662.1	70 -	120	ISFail
45	Sc	1	165486.64	0.45	157844.06	104.8	70 -	120	
45	Sc	2	6574466.00	1.93	5827273.50	112.8	70 -	120	
72	Ge	1	89509.84	0.83	86621.49	103.3	70 -	120	
115	In	2	6334299.00	1.68	6276207.00	100.9	70 -	120	
209	Bi	2	4137339.50	1.24	4446753.50	93.0	70 -	120	

CCV QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\049LCVL.D\049LCVL.D#

Date Acquired:	Aug 10 2016 03:50 pm	Sample Name:	**LCVL1-160810**
Acq. Method:	DHL_3Fe.M	Misc Info:	LCVLICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 10 2016 01:05 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	12.59	ppb	2.24	10.00	70 -	130	125.9	
9	Be	2	45	1.21	ppb	1.93	1.00	70 -	130	120.5	
11	B	2	45	24.99	ppb	1.26	20.00	70 -	130	125.0	
23	Na	1	45	113.70	ppb	0.51	100.00	70 -	130	113.7	
24	Mg	1	45	110.40	ppb	2.96	100.00	70 -	130	110.4	
27	Al	1	45	112.80	ppb	2.26	100.00	70 -	130	112.8	
39	K	1	45	114.80	ppb	2.42	100.00	70 -	130	114.8	
44	Ca	2	45	115.50	ppb	3.16	100.00	70 -	130	115.5	
47	Ti	1	45	5.35	ppb	13.35	5.00	70 -	130	106.9	
51	V	1	45	1.03	ppb	3.39	1.00	70 -	130	103.0	
52	Cr	1	45	5.21	ppb	3.79	5.00	70 -	130	104.2	
55	Mn	1	45	5.28	ppb	2.21	5.00	70 -	130	105.6	
56	Fe	1	72	114.70	ppb	1.09	100.00	70 -	130	114.7	
59	Co	1	72	5.25	ppb	3.47	5.00	70 -	130	104.9	
60	Ni	1	72	5.31	ppb	5.53	5.00	70 -	130	106.1	
63	Cu	1	72	5.26	ppb	3.88	5.00	70 -	130	105.2	
66	Zn	1	72	6.64	ppb	20.26	5.00	70 -	130	132.8	Fail
75	As	1	72	5.28	ppb	0.98	5.00	70 -	130	105.6	
78	Se	1	72	5.51	ppb	10.53	5.00	70 -	130	110.2	
88	Sr	2	115	5.36	ppb	2.52	5.00	70 -	130	107.2	
95	Mo	2	115	5.22	ppb	3.41	5.00	70 -	130	104.4	
107	Ag	2	115	2.08	ppb	2.68	2.00	70 -	130	104.1	
111	Cd	2	115	1.12	ppb	5.91	1.00	70 -	130	111.5	
118	Sn	2	115	5.15	ppb	3.81	5.00	70 -	130	103.1	
121	Sb	2	115	2.04	ppb	1.61	2.00	70 -	130	102.0	
137	Ba	2	115	4.91	ppb	3.48	5.00	70 -	130	98.3	
205	Tl	2	209	1.15	ppb	1.21	1.00	70 -	130	114.9	
208	Pb	2	209	1.13	ppb	0.51	1.00	70 -	130	113.2	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)			Flag
6	Li	2	-2750.00	2.55	36.77	-7479.0	70 -	120		ISFail
45	Sc	1	166725.66	1.84	157844.06	105.6	70 -	120		
45	Sc	2	6332806.00	1.91	5827273.50	108.7	70 -	120		
72	Ge	1	90575.79	1.12	86621.49	104.6	70 -	120		
115	In	2	6233634.50	1.32	6276207.00	99.3	70 -	120		
209	Bi	2	4197759.50	1.54	4446753.50	94.4	70 -	120		

CCB QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\050_CCB.D\050_CCB.D#

Date Acquired:	Aug 10 2016 03:56 pm	Sample Name:	**CCB1-160810**
Acq. Method:	DHL_3Fe.M	Misc Info:	CCB ICPMS_TW
Operator:	KL	Diln Factor:	1.00
Last Cal. Update:	Aug 10 2016 01:05 pm		
Instrument:	ICPMS3		

QC Elements

Element				Conc.		RSD(%)	MDL S	MDL Aq	Flag
7	Li	2	45	0.177	ppb	1.13	2.00	2.00	
9	Be	2	45	0.037	ppb	11.06	0.40	0.30	
11	B	2	45	3.631	ppb	3.34	10.00	10.00	
23	Na	1	45	12.710	ppb	2.10	50.00	#####	
24	Mg	1	45	2.342	ppb	13.82	50.00	#####	
27	Al	1	45	10.340	ppb	3.32	50.00	10.00	FailAq
39	K	1	45	11.940	ppb	3.59	50.00	#####	
44	Ca	2	45	32.860	ppb	4.42	50.00	#####	
47	Ti	1	45	0.152	ppb	10.83	4.00	3.00	
51	V	1	45	0.013	ppb	12.91	4.00	3.00	
52	Cr	1	45	0.073	ppb	6.24	2.00	2.00	
55	Mn	1	45	0.122	ppb	8.70	2.00	3.00	
56	Fe	1	72	3.064	ppb	10.79	50.00	30.00	
59	Co	1	72	0.043	ppb	16.11	2.00	3.00	
60	Ni	1	72	0.135	ppb	7.66	2.00	3.00	
63	Cu	1	72	0.093	ppb	8.48	2.00	2.00	
66	Zn	1	72	1.139	ppb	11.47	4.00	2.00	
75	As	1	72	0.009	ppb	5.34	2.00	2.00	
78	Se	1	72	0.095	ppb	15.56	0.60	2.00	
88	Sr	2	115	0.143	ppb	8.35	4.00	3.00	
95	Mo	2	115	0.086	ppb	15.51	2.00	2.00	
107	Ag	2	115	0.037	ppb	4.28	0.40	1.00	
111	Cd	2	115	0.054	ppb	17.39	0.40	0.30	
118	Sn	2	115	0.163	ppb	4.08	20.00	3.00	
121	Sb	2	115	0.074	ppb	17.96	2.00	0.80	
137	Ba	2	115	0.130	ppb	15.86	2.00	3.00	
205	Tl	2	209	0.128	ppb	2.33	2.00	0.50	
208	Pb	2	209	0.089	ppb	8.91	0.40	0.30	

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	RHigh	-47.78	21.45	36.77	-129.9	70 - 120	ISFail
45	Sc	1		167009.52	1.37	157844.06	105.8	70 - 120	
45	Sc	2		6290814.50	2.41	5827273.50	108.0	70 - 120	
72	Ge	1		91555.22	1.43	86621.49	105.7	70 - 120	
115	In	2		6177034.50	1.10	6276207.00	98.4	70 - 120	
209	Bi	2		4190757.50	0.64	4446753.50	94.2	70 - 120	

PB QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\051__PB.D\051__PB.D#

Date Acquired:	Aug 10 2016 04:02 pm	Sample Name:	**MB-76690**
Acq. Method:	DHL_3Fe.M	Misc Info:	MBLKICPMS_TSDOD
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	Aug 10 2016 01:05 pm	Auto Dil:	Undiluted
Instrument:	ICPMS3	Total Dil:	5.00

QC Elements

Element				Conc.		RSD(%)	MDL	RL	Flag
7	Li	2	45	0.119	ppb	4.77	2.0	8.00	
9	Be	2	45	0.014	ppb	47.95	0.4	1.20	
11	B	2	45	2.606	ppb	2.41	10.0	30.00	
23	Na	1	45	20.670	ppb	0.64	50.0	#####	
24	Mg	1	45	10.690	ppb	4.06	50.0	#####	
27	Al	1	45	5.007	ppb	9.19	50.0	#####	
39	K	1	45	25.440	ppb	1.00	50.0	#####	
44	Ca	2	45	41.360	ppb	5.44	50.0	#####	
47	Ti	1	45	0.042	ppb	45.83	4.0	10.00	
51	V	1	45	-0.030	ppb	10.26	4.0	10.00	
52	Cr	1	45	0.206	ppb	5.90	2.0	8.00	
55	Mn	1	45	0.143	ppb	14.00	2.0	8.00	
56	Fe	1	72	4.339	ppb	11.28	50.0	#####	
59	Co	1	72	0.006	ppb	20.09	2.0	8.00	
60	Ni	1	72	0.143	ppb	14.62	2.0	8.00	
63	Cu	1	72	0.138	ppb	3.20	2.0	8.00	
66	Zn	1	72	2.386	ppb	5.38	4.0	10.00	
75	As	1	72	0.017	ppb	0.99	2.0	4.00	
78	Se	1	72	0.082	ppb	18.60	0.6	2.00	
88	Sr	2	115	0.092	ppb	7.61	4.0	10.00	
95	Mo	2	115	0.049	ppb	12.64	2.0	8.00	
107	Ag	2	115	0.013	ppb	12.08	0.4	0.80	
111	Cd	2	115	0.003	ppb	7.86	0.4	1.20	
118	Sn	2	115	4.467	ppb	2.30	20.0	40.00	
121	Sb	2	115	0.038	ppb	15.93	2.0	4.00	
137	Ba	2	115	0.053	ppb	14.34	2.0	8.00	
205	Tl	2	209	0.081	ppb	6.28	2.0	4.00	
208	Pb	2	209	0.083	ppb	8.37	0.4	1.20	

ISTD Elements

Element				CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	2	RHig	-31.47	51.25	36.77	-85.6	70 - 120	ISFail
45	Sc	1		171408.14	0.73	157844.06	108.6	70 - 120	
45	Sc	2		6442825.50	2.04	5827273.50	110.6	70 - 120	
72	Ge	1		91171.99	1.42	86621.49	105.3	70 - 120	
115	In	2		6212227.50	1.89	6276207.00	99.0	70 - 120	
209	Bi	2		4269142.00	1.10	4446753.50	96.0	70 - 120	

LCS QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\052_LCS.D\052_LCS.D#

Date Acquired:	Aug 10 2016 04:08 pm	Sample Name:	**LCS-76690**
Acq. Method:	DHL_3Fe.M	Misc Info:	LCS ICPMS_TSDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	Aug 10 2016 01:05 pm	Auto Dil:	Undiluted
Instrument:	ICPMS3	Total Dil:	5.00

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	238.30	ppb	1.16	200.00	80 -	120	119.2	
9	Be	2	45	215.70	ppb	1.51	200.00	80 -	120	107.9	
11	B	2	45	212.80	ppb	1.34	200.00	80 -	120	106.4	
23	Na	1	45	5347.00	ppb	1.04	5000.00	80 -	120	106.9	
24	Mg	1	45	5044.00	ppb	2.31	5000.00	80 -	120	100.9	
27	Al	1	45	1006.00	ppb	3.94	1000.00	80 -	120	100.6	
39	K	1	45	5042.00	ppb	1.84	5000.00	80 -	120	100.8	
44	Ca	2	45	5210.00	ppb	2.02	5000.00	80 -	120	104.2	
47	Ti	1	45	200.90	ppb	3.31	200.00	80 -	120	100.5	
51	V	1	45	199.40	ppb	2.60	200.00	80 -	120	99.7	
52	Cr	1	45	200.50	ppb	2.87	200.00	80 -	120	100.3	
55	Mn	1	45	202.00	ppb	2.05	200.00	80 -	120	101.0	
56	Fe	1	72	1075.00	ppb	4.22	1000.00	80 -	120	107.5	
59	Co	1	72	208.90	ppb	3.12	200.00	80 -	120	104.5	
60	Ni	1	72	204.40	ppb	1.61	200.00	80 -	120	102.2	
63	Cu	1	72	207.30	ppb	2.17	200.00	80 -	120	103.7	
66	Zn	1	72	203.00	ppb	2.24	200.00	80 -	120	101.5	
75	As	1	72	198.40	ppb	2.63	200.00	80 -	120	99.2	
78	Se	1	72	193.20	ppb	3.40	200.00	80 -	120	96.6	
88	Sr	2	115	218.80	ppb	1.22	200.00	80 -	120	109.4	
95	Mo	2	115	209.20	ppb	1.62	200.00	80 -	120	104.6	
107	Ag	2	115	206.30	ppb	2.37	200.00	80 -	120	103.2	
111	Cd	2	115	197.90	ppb	2.37	200.00	80 -	120	99.0	
118	Sn	2	115	205.20	ppb	1.31	200.00	80 -	120	102.6	
121	Sb	2	115	190.30	ppb	1.54	200.00	80 -	120	95.2	
137	Ba	2	115	196.10	ppb	1.33	200.00	80 -	120	98.1	
205	Tl	2	209	213.90	ppb	1.14	200.00	80 -	120	107.0	
208	Pb	2	209	206.60	ppb	1.44	200.00	80 -	120	103.3	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	-86131.67	1.64	36.77	-234247.0	70 -	120	ISFail
45	Sc	1	172287.91	0.48	157844.06	109.2	70 -	120	
45	Sc	2	6365078.00	2.42	5827273.50	109.2	70 -	120	
72	Ge	1	90262.32	0.57	86621.49	104.2	70 -	120	
115	In	2	6101695.50	1.38	6276207.00	97.2	70 -	120	
209	Bi	2	4137535.00	0.92	4446753.50	93.0	70 -	120	

LCS QC Report

C:\ICPCHEM\1\DATA\16H10k01.B\053_LCS.D\053_LCS.D#

Date Acquired:	Aug 10 2016 04:14 pm	Sample Name:	**LCSD-76690**
Acq. Method:	DHL_3Fe.M	Misc Info:	LCSDICPMS_TSDOD1
Operator:	KL	Bench Diln:	5.00
Last Cal. Update:	Aug 10 2016 01:05 pm	Auto Dil:	Undiluted
Instrument:	ICPMS3	Total Dil:	5.00

QC Elements

Element				Conc.		RSD(%)	Expected	QC Range(%)		Rec(%)	Flag
7	Li	2	45	235.40	ppb	0.57	200.00	80 -	120	117.7	
9	Be	2	45	214.90	ppb	1.18	200.00	80 -	120	107.5	
11	B	2	45	211.80	ppb	1.00	200.00	80 -	120	105.9	
23	Na	1	45	5372.00	ppb	2.39	5000.00	80 -	120	107.4	
24	Mg	1	45	5104.00	ppb	1.91	5000.00	80 -	120	102.1	
27	Al	1	45	1034.00	ppb	3.47	1000.00	80 -	120	103.4	
39	K	1	45	5050.00	ppb	1.40	5000.00	80 -	120	101.0	
44	Ca	2	45	5249.00	ppb	1.72	5000.00	80 -	120	105.0	
47	Ti	1	45	203.10	ppb	4.79	200.00	80 -	120	101.6	
51	V	1	45	200.40	ppb	2.85	200.00	80 -	120	100.2	
52	Cr	1	45	201.00	ppb	2.73	200.00	80 -	120	100.5	
55	Mn	1	45	202.50	ppb	2.00	200.00	80 -	120	101.3	
56	Fe	1	72	1083.00	ppb	2.31	1000.00	80 -	120	108.3	
59	Co	1	72	208.20	ppb	2.42	200.00	80 -	120	104.1	
60	Ni	1	72	203.90	ppb	1.92	200.00	80 -	120	102.0	
63	Cu	1	72	207.30	ppb	1.74	200.00	80 -	120	103.7	
66	Zn	1	72	205.10	ppb	1.90	200.00	80 -	120	102.6	
75	As	1	72	199.70	ppb	1.50	200.00	80 -	120	99.9	
78	Se	1	72	195.60	ppb	1.60	200.00	80 -	120	97.8	
88	Sr	2	115	219.20	ppb	1.30	200.00	80 -	120	109.6	
95	Mo	2	115	209.90	ppb	1.67	200.00	80 -	120	105.0	
107	Ag	2	115	203.40	ppb	2.99	200.00	80 -	120	101.7	
111	Cd	2	115	198.30	ppb	1.39	200.00	80 -	120	99.2	
118	Sn	2	115	206.20	ppb	1.46	200.00	80 -	120	103.1	
121	Sb	2	115	191.20	ppb	1.17	200.00	80 -	120	95.6	
137	Ba	2	115	195.90	ppb	1.40	200.00	80 -	120	98.0	
205	Tl	2	209	214.00	ppb	1.33	200.00	80 -	120	107.0	
208	Pb	2	209	207.00	ppb	0.98	200.00	80 -	120	103.5	

ISTD Elements

Element			CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6	Li	2	-81958.80	0.49	36.77	-222898.3	70 -	120	ISFail
45	Sc	1	172426.50	0.65	157844.06	109.2	70 -	120	
45	Sc	2	6187878.00	2.40	5827273.50	106.2	70 -	120	
72	Ge	1	90369.60	0.27	86621.49	104.3	70 -	120	
115	In	2	5997364.50	1.14	6276207.00	95.6	70 -	120	
209	Bi	2	4103592.80	1.06	4446753.50	92.3	70 -	120	